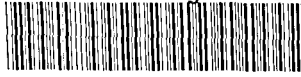


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BIBLIOGRAPHY
ON MEDICINE AND PHARMACY
IN MEDIEVAL ISLAM

by

Sami Hamarneh

Mit einer Einführung

Arabismus in der Geschichte der Pharmazie

von

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1964

*Dedicated to my wife, Nazba, and
my son, Faris, who inspire and
encourage me in my interest in the
great cultural legacy of Islam.*

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Arabismus in der Geschichte der Pharmazie

von

Prof. Dr. Rudolf Schmitz

Seminar für Geschichte der Pharmazie
der Universität Marburg/Lahn

Was in der Wissenschaftsgeschichte unter Arabismus verstanden werden soll, vermag man nur per definitionem festzulegen. — Unter einem Arabisten z. B. kann man sich sowohl den Träger des *historischen Arabismus* in dem hier gesuchten Sinne vorstellen, als auch jemanden, der die Wissenschaft der *Arabistik* betreibt, also sich mit der arabischen Sprache im außerarabischen Bereich beschäftigt. H. Schipperges trennt Arabismus von den *Arabischen Wissenschaften* stricto sensu insofern diese einen historisch abgeschlossenen Sektor, hauptsächlich der Natur- und Heilkunde, bezeichnen. Er grenzt ihn weiter gegen allgemeine Erscheinungen einer *Arabischen Kulturbewegung* ab, wenn dabei an religiöse oder kulturpolitische Ausstrahlungen der arabischen Hochkultur ins Abendland gedacht wird (Islamkunde). Schließlich vermerkt er noch einen *Arabismus im historiographischen Sinne*, der sich auf die Vertreter jener Bewegung einer arabisierten Medizin und Naturwissenschaft der Spätscholastik erstreckt, die von der humanistischen Naturauffassung bekämpft und überwunden wurde. Dieser Terminus habe erst in neuerer Zeit in den Sprachgebrauch der Historiker Eingang gefunden.

Was also versteht man unter Arabismus in der Pharmaziegeschichte? Auf pharmaziehistorischer Seite gaben A. Adlung und G. Urdang indirekt und vermutlich auch unbewußt eine Definition. In der Schlußbetrachtung zu ihrem Grundriß der Geschichte der Deutschen Pharmazie bezogen sie sich auf einen Holzschnitt in der ältesten deutschen Kräuterbuchinkunabel, dem 1485 bei Peter Schöffer in Mainz gedruckten Hortus sanitatis. Auf ihm sind die nach Ansicht des Verfassers des Hortus (Johann von Cube) bewährtesten Meister der Arzneikunde zu sehen: Avicenna, Galenus, Plinius, Dioskurides und Serapion.

Adlung-Urdang knüpfen daran die Bemerkung, am Anfang und am Ende stehen je ein Araber, in der Mitte die Vertreter der klassischen Antike, zwei Griechen und ein Lateiner ... — Diese Liste der für die Arzneikunde des Spätmittelalters maßgeblichen Persönlichkeiten sei für die Geschichte der wissenschaftlichen Entwicklung der Pharmazie von symbolischer Bedeutung.

Es kann dahingestellt bleiben, ob die Symbolik des Bildes richtig gedeutet ist. Ebenso, ob man Galen und Dioskurides noch als Vertreter der klassischen griechischen Antike und ihrer Heilkunst ansprechen kann, weiter wozu man Plinius rechnen soll und welcher Serapion gemeint ist. Hier ist lediglich die Feststellung beachtenswert, daß dem Araber Avicenna der erste Platz in dieser Reihe großer Namen eingeräumt wurde. Man sollte das in dem Sinne deuten, daß das Eindringen arabischen Wissens über die Natur und ihre Kräfte in das christliche Mittelalter am Anfang der eigenständigen Entwicklung abendländischer Naturwissenschaften und damit auch der empirisch wie theoretisch fundierten Pharmazie stand. — Der Kontakt der europäischen Geisteswelt mit der arabischen Literatur im 11. Jahrhundert stellt jedoch nicht den Beginn des *historischen Arabismus* dar. Erst die Rezeption des angebotenen Wissens und die ihr folgende geistige Auseinandersetzung, die in immer stärkerem Maße vom Anbeginn des 12. Jahrhunderts zu beobachten ist, berechtigt vom Arabismus im gesuchten Sinne zu sprechen. Seine Blütezeit liegt im 13., sein Welken am Ende des 15. Jahrhunderts, von einem Ende kann nicht gesprochen werden (Schipperges). — Aus der Definition des Arabismus ergeben sich zwangsläufig Fragen nach seiner Entstehung, seinem Wesensinhalt und historischem Ablauf. Hierauf kann man ohne vorher einen — wenn auch nur streifenden — Blick auf die Entwicklung der *Arabischen Wissenschaften* geworfen zu haben, kaum antworten.

Der Beginn der arabischen Kultur ist nicht ohne weiteres mit der Begründung des Islam durch Muḥammad gleichzusetzen, als dessen Anfang des Propheten Flucht von Mekka nach Medina gilt. In den auf die Hǧra (622) folgenden Jahrzehnten wurden durch Glaubens- und Eroberungskämpfe große Kulturgüter

zerstört. Erst nachdem die Länder des vorderen Orients: Arabien, Syrien, Persien, Ägypten und darüber hinaus Teile Vorderindiens unter der Herrschaft der Chalifen zusammengeschlossen waren, und der Ommajade Mu'āwiyah († 679) das Chalifat nach Damaskus verlegt hatte, begann eine positiv evolutionäre und kulturell fruchtbare Entwicklung. Besonders unter den Abasidenherrschern, von denen Harūn-ar-Raschīd (786—809) — Zeitgenosse Karls des Großen — auch im europäischen Bewußtsein lebendig geblieben ist, machte die Rezeption antiken, vornehmlich naturwissenschaftlichen und medizinischen Wissens große Fortschritte. Zwei äußere Ereignisse sind vor allem für diese Entwicklung entscheidend: der Sprung der Araber nach Spanien (711) und die Verlegung des orientalischen Chalifats von Damaskus nach Bagdad. 762 hatte der erste abasidische Chalif al-Mansūr (754—775) mit der politischen Hauptstadt auch das geistige Zentrum der arabischen Bewegung an die Ufer des Tigris verlegt und damit gleichzeitig die Wanderung der berühmten hippokratischen Schule über Edessa, Gundešāpūr, Nisibis, Damaskus, Antiochia, Harran vorläufig beendet. In dieser Schule war in Jahrhunderten das Wissen der Vergangenheit zusammengetragen und später in die Sprache der damaligen Welt, das Arabische, übersetzt worden. Sehr bald wuchsen Persönlichkeiten heran, die nicht nur einfache Übersetzer antiker Texte waren, sondern das Überlieferte zu verarbeiten, durch eigene Gedanken zu erweitern und entwickeln verstanden. Auf die Epoche des mechanischen Übernehmens klassischen Wissens folgte eine Zeit aktiver Durchdringung und schließlich höchst individueller Reflexion.

Zum Ruhme Bagdads, der Mittelpunkt der damaligen Welt zu sein, trugen Namen wie Hunain ibn Ishāq (lat. Johannitius; † 873), eines nestorianischen Christen, als dem Übersetzer des Oreibasios und des Paulus von Aegina, vor allem aber als Bearbeiter der Isagoge Johannitii in artem parvam Galeni bei. Al-Kindi (lat. Alkindus; † nach 870), ein Moslem, philosophierte über die Wirkung der Arzneimittel und versuchte dem Problem ihrer Dosierung auf mathematische Weise näher zu kommen. Mit dem zum Islam übergetretenen persischen

Christen Ali Rabban aṭ-Ṭabarī († nach 855) leitete die Entwicklung zu den beiden bedeutendsten Erscheinungen der Blütezeit der arabischen Heilkunst, zu Rhazes (Abū Bekr Muḥammad ibn Zakarīyā-ar-Razī; genannt nach seiner Vaterstadt Raj in der persischen Provinz Chorasan; † 925) und Avicenna (Abū Ali ibn Sīnā; † 1037 in Hamadān) über. Des Rhazes *Continens* (arab. al-ḥawī = Gefäß, Behälter) ist das große Quellenwerk des Mittelalters. In einer ungewohnten und seltenen Vollständigkeit bemühte sich der Verfasser, die Herkunft seines Wissens nachzuweisen und Beobachtungen exakt niederzuschreiben. K. Sudhoff nannte ihn den größten Kliniker des Mittelalters im Morgen- und Abendland, eine Eulogie, die P. Diepgen in seiner Geschichte der Medizin uneingeschränkt beibehielt. Doch wesentlich mehr als der *Continens* ist des Rhazes 10bändiges Buch *Kitāb aṭ-ṭib al-Mansūri*, ein Handbuch der Heilkunde, im pharmazeutischen Bereich bekannt geworden, wo es die Jahrhunderte überdauerte. Schließlich überwog der Einfluß Avicennas. Sein *qānūn fiṭ-ṭibb* (so viel wie ärztlicher Kanon im Sinne einer gesetzlichen Regel) wurde das wichtigste einschlägige Werk des ganzen Mittelalters und blieb es in der islamischen Welt bis an die Schwelle unserer Tage. Es zeichnet sich durch scharfe Disponierung des Stoffes, lehrmäßige Einprägsamkeit und glänzende Darstellung aus (Diepgen). Sein Inhalt ist die Zusammenfassung und Verschmelzung des heilkundlichen Wissens von Hippokrates über Galen bis zu den Arabern selbst. — Der Klassiker unter den Pharmazeuten war Abū Zakarīyā Yuḥannā ibn Māsawaih, der die Rezeptarien des Mittelalters beherrschende *Mesuē*. Er soll der Sohn eines Apothekers an der Hippokratischen Schule zu Ġundešāpūr gewesen sein, war Leibarzt einiger Chalifen und starb 857. Des öfteren wird er mit *Mesuē* dem Jüngeren, auch *Pseudo-Mesuē*, dem man in der modernen Forschung die Rezeptliteratur des *Antidotarium Mesuē* zuzuschreiben gewillt ist, verwechselt. Eindeutig geklärt scheinen weder die Verhältnisse des einen noch des anderen zu sein.

Der orientalischen Entwicklung steht die in Spanien am Sitz des Chalifats Cordova nicht nach. Hier hatte sich das eindringen-

de Arabertum allerdings mit einem älteren, fester gefügten Volkstum, lebendigerem christlichem Glaubensbewußtsein und einer im römischen bzw. westgotischen Reich gewachsenen Kultur auseinanderzusetzen. Im Entstehen der maurischen Welt wurde das *do ut des*, die Gegenseitigkeit des Gebens und Nehmens ein formender Faktor. Die Blüte des spanischen Arabertums liegt daher zeitlich später als in der orientalischen Sphäre. Als ihren Höhepunkt kann man die Zeit der Regierung Abdārrhāmāns II. (912 bis 961) und Ḥākams II. (961—976) ansehen.

Unter den Wissenschaftlern in der Heilkunde ragte vor allem Albukasim (Abū-l-Quasim Chālif ibn Abbās az-Zarhāwī; † 1013?) als bekanntester Chirurg hervor. Abenzoar, (Abū Merwan ibn Zohr; † 1162), der den *aṭ-Ṭeisir* (= die Erleichterung die Heilmittel betreffend) schrieb, war der Freund des für die mittelalterliche Geistesgeschichte bedeutenden Averroes (ibn Roschd). Letzterem, einem Philosophen, verdanken wir eine der wichtigsten und eigenwilligsten Interpretationen der Werke des Aristoteles, in der er sich des öfteren gegen Galen und für den Philosophen aus Stagira entschied. Ein Verhalten, mit dem zum ersten Male in der Geschichte die Unfehlbarkeit galenischer Lehrsätze in Zweifel gezogen wurde. Im Verein mit kritisch philosophischen Thesen über die Stellung der Religion trug diese Tatsache dem Averroismus selbst das Odium der Glaubensfeindlichkeit ein. — Einen der berühmtesten Namen trägt der in Cordova geborene jüdische Arzt, Mathematiker und Astronom Moses ben Maimon genannt Maimonides (*30. 3. 1135, † 13. 12. 1204), der nach Fostat (Alt-Kairo) emigrierend, die maurische Heilkunde an den Nil verpflanzte. — Als der hervorragendste Botaniker arabischer Zunge gilt der in Malaga geborene Abū Muḥammad ibn-al-Baiṭār († 1248). Sein Buch über die einfachen Heil- und Nahrungsmittel ist nach H. Haeser eine aus früheren Schriften zusammengestellte Kompilation. Doch die Beschreibung der Pflanzen beruht zum großen Teil auf eigenen Beobachtungen, die er während seiner Reisen nach Ägypten und Syrien gemacht hatte. Unter annähernd 2600 Heilstoffen beschrieb er etwa 1400 Pflanzen, 400 mehr als Plinius.

In der Frühgeschichte der Chemie und Alchemie ist vor allem Abū-Musa-Ġabir-ibn Hayyān, (lat. Geber; um 760) zu nennen.

Der im Mittelalter verbreitete Mißbrauch seines Namens hat im Laufe der Jahrhunderte zu einer allgemeinen Verwirrung geführt, die auch nach der Veröffentlichung J. Ruskas über den angeblichen Zusammenbruch der Ġabir-Legende nicht völlig beseitigt werden konnte. Es wird am klügsten sein, den Platz des Ġabir für die Geschichte erst dann festzulegen, wenn eine kritische Untersuchung aller arabischen Werke, die unter seinem bzw. dem Namen Geber überliefert sind, durchgeführt worden ist.

Wie haben nun die Arabischen Wissenschaften in die Entwicklung der christlich-europäischen Naturwissenschaften und ihrer theoretischen Fundierung eingegriffen? Wo sind die Kontakt- und Nahstellen mit dem Abendland, über die der ununterbrochene Strom heil- und naturkundlicher Kenntnisse von den Anfängen der historiographisch erfaßbaren Menschheitsgeschichte über die Araber bis in unsere Zeit hinübergeflossen ist?

Bei einer Antwort müssen grundsätzlich zwei Entwicklungsstufen beachtet werden: die der mechanischen Übersetzung und die der geistigen Auseinandersetzung, also der eigentlichen Rezeption. Die geographischen Schwerpunkte der ersten Stufe sind im allgemeinen örtlich identisch mit den Keimzellen der zweiten. Sie sind in den beiden großen Übersetzer-schulen, dem in Unteritalien gelegenen Salerno und dem spanischen Toledo zu erblicken. Doch zeigen beide wesentliche Verschiedenheiten sowohl hinsichtlich ihrer Entstehung als auch ihrer geistigen Fundamente. — Es wird gesagt, daß die Wurzeln der Medizinschule von Salerno in christlichen, benediktinisch beeinflussten Bestrebungen zu suchen seien, die weit in die Zeit vor 900 n. Chr. reichten. Diesen Vorstellungen sollte, da sie nicht schlüssig bewiesen sind, mit einiger Zurückhaltung begegnet werden. Das nach einem Vorschlag K. Sudhoffs „Frühsalerno“ (— 1100) benannte Zeitalter beginnt mit der Wiederentdeckung von in arabischer Sprache verfaßten naturwissenschaftlichen und medizinischen Texten,

die der zum Christentum übergetretene Araber Constantinus Africanus († etwa 1087 in Monte Cassino) ins Lateinische übertragen hatte. Gleichzeitig mit arabischem wurde auch antik griechisches Wissen im Kleide des Islam (Diepgen) in die abendländische Heilkunde tradiert. Aus der Vielzahl seiner Übertragungen entwickelten sich u. a. die Pantechne, eine unter Konstantins Namen zusammengefaßte *Ars medicinae* und das *Viaticum* des ibn al-Ğazzar, das dieser erst um 1000 n. Chr. wahrscheinlich in Kairawan (Tunis) geschrieben hatte. Zwar übersetzte Konstantin die Werke von Rhazes und Avicenna nicht. Dennoch ist seinem Wirken das eigentliche „Salerno“ zu verdanken, das von seinem Schüler Johannes Afflatus über Magister Copho, die beiden Platearii (von denen der jüngere Matthaeus mit seinem *Circa instans* die Arzneibuchliteratur des späten Mittelalters stark beeinflusste), über Salernus, Romualdus, Musandinus, Rogerius, Maurus, Urso und Trotus, Ferrarius und Petronius u. a. bis zur Scholastik reichte.

Anders in Toledo! — Erst 1085 war es von Alfons VI. den Arabern, die es seit 711 beherrscht hatten, entrissen worden, wobei diese reiche Handschriftenschätze zurückließen. In der Mitte des 12. Jahrhunderts hatte Gundissalinus unter dem ehemaligen cluniazensischen Mönch und späteren Erzbischof Raimundus von Toledo einen Kreis von Übersetzern begründet, für die zunächst die Werke des Aristoteles im Vordergrund standen. Allmählich gerieten auch die Schriften von Avicenna und Rhazes in den Griff der Traduktoren und gelangten in das Blickfeld der wissenschaftlichen Welt Europas. Im Gegensatz zu dem durch Constantinus Africanus inaugurierten Arabismus der Schule von Salerno blieb die Wirkung der Toledaner Übersetzungen nicht lokal beschränkt, sondern wurde bald schon zu einem abendländischen Ereignis (Schipperges). Gerhard von Cremona, der nach dem Rate Barbarossas in Toledo die neuen Wissenschaften an Ort und Stelle studieren wollte, wurde der Kopf der Schule. Ihm ordneten sich seine Schüler als *socii*, *discipuli*, *consortes* oder *adjutores translationis* willig unter. Der Kanon des Avicenna wurde nun ebenso übersetzt wie die *Isagoge* des Johannitius und des

Rhazes Continens. Als Gerhard 1187 starb, zählte man in der Vita über 70 Werke auf, deren Übersetzung seiner Inspiration zu verdanken war.

Damit hatte der *Arabismus* unserer Definition die Fundamente erhalten und begann das Denken und Handeln der abendländischen Naturwissenschaftler zu durchdringen. Er fand Eingang in die Aristotelesvorstellungen der Scholastik. Albertus Magnus (1206—1280) suchte sich zunächst immer wieder seinem Einfluß zu entziehen; Roger Bacon (1210—1292) sah in den arabischen Interpretationen eher eine Verfälschung der Antike und eine Abwertung des neuen Wissens, denn einen Fortschritt. Es bedurfte schließlich des Rationalismus eines Thomas von Aquin, um für die neuen Auffassungen den Weg in die Scholastik zu bereiten, wodurch Roger Bacon die Forderung ermöglicht wurde, das Experiment als wissenschaftlichen Beweis an die Stelle des spekulativen Analogieschlusses treten zu lassen. — Die flüchtige Art, in der man diese außerordentlich fruchtbare Periode der Rezeption antiken und arabischen Wissens in der älteren Pharmaziegeschichte in Summa glaubte abhandeln zu können, entsprach zwar deren positivistischer Geschichtsauffassung, wurde aber der Wahrheit nicht gerecht; denn seit jener Zeit steht der abendländischen Pharmazie die nahezu vollständige historische *Materia medica* zur Verfügung. Sturzflutartig ergoß sich über die wenigen Pflanzstätten heilkundlicher Gelehrsamkeit, zu denen neben Salerno und Toledo die Medizinschule von Montpellier, die Universitäten Paris, Padua und Bologna traten, eine Fülle des von seinen medizinischen Verflechtungen noch nicht freigelegten pharmazeutischen Wissens. Die Namen werden Legion. Zum Geber tritt der Pseudo-Geber, zu Albertus der Pseudo-Albertus, zu Mesuë der Pseudo-Mesuë usw. An diesem Durcheinander haben die Kompilatoren und Abschreiber des 14. und 15. Jahrhunderts zu einem guten Teil Schuld. Der Kern der klassischen Methoden und Rezepte wurde mit einem kaum entwirrbaren Netz eigener Zutaten umwoben. Das Schwinden einer allgemeinen Kenntnis der arabischen Sprache erschwerte es, die Spreu vom Weizen zu trennen. Vollends die Buchdruckerkunst trug dazu bei, einmal gedruckte Fehldarstellungen

und Irrtümer schneller und weiter zu verbreiten. Es begann die Zeit des *Arabismus im historiographischen Sinne*, für den einzelne deutsche Universitäten — wie Tübingen — als Hochburgen galten. Die Auseinandersetzungen hart, die Gegensätze groß, war man in den Argumenten wenig wählerisch. So betete der lothringische Leibarzt Symphorien Champier (Campegius 1472—1533) zu Gott, daß er Tübingens Universität *more Parisiensium ab omni Mahumetensium medicorum haeresi liberet et praeservet*. Es war Leonhart Fuchs (1501—1566), der den Wunsch des Lothringers Wirklichkeit werden ließ. — Vielfach galten die Apotheker als eingeffleischte Arabisten und man nannte sie, die durch die Schlechtigkeit der Araber verdorben seien, Ignoranten und Empiriker (S. Champier).

Die Weitergabe arabischer Chemie und Alchemie ist ein Gebiet, auf das sich bislang nur wenige moderne Forscher gewagt haben. Die Schwierigkeiten bestehen nicht zuletzt darin, daß die Bearbeiter nicht nur in der Chemie selbst, sondern auch im Griechischen und Lateinischen zu Hause, und des Arabischen mächtig sein müssen. Ist dies nicht der Fall, so wird man auf die Dauer über die Schwierigkeit stolpern, keine Quellenkritik üben zu können. Mit den aus den Übersetzerschulen von Salerno und Toledo überlieferten Texten ist aber die Fülle dessen, was uns die arabische Welt noch zu offenbaren hat, bei weitem nicht erschöpft. Abgesehen von den Handschriften, die in deutschen Bibliotheken lagern und ihrer Auswertung harren, sind die großen Schätze der spanischen, türkischen, ägyptischen und der Bibliotheken des Balkan nur zu einem relativ kleinen Teil bekannt. Hier schlummert vermutlich eine Menge dessen, was wir wissen müßten, wenn wir uns ein vollständiges Bild über arabische Naturwissenschaft und den historischen Arabismus machen wollen*).

*) Mit freundlicher Genehmigung der Pharmazeutischen Zeitung Frankfurt/Main.

Bibliography
on Medicine and Pharmacy
in Medieval Islam

by

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INTRODUCTION

In publications concerned with the development and contribution of medical and allied sciences in medieval Islam there are a number of selective bibliographies useful to scholars in the history of health fields. One can refer to these bibliographies in the works of such orientalist as Wüstenfeld, Leclerc, Steinschneider, Hirschberg, Wiedemann, Brockelmann, Kraus, Ruska, Rénaud, Meyerhof, Sarton, Schipperges, and Levey, whose works are mentioned in this compilation. However, I know of no up-to-date, separate publication devoted entirely to assisting medievalists in their search for information on medicine and pharmacy and their development in the Islamic states during the Middle Ages. Consequently I have compiled this bibliography from personal notes, which I began to develop for my own research in 1956. This compilation is by no means comprehensive and it does not claim to represent the best selection of available sources. It is very possible that several choice works have been overlooked, and I shall be grateful to any reader who brings such omissions to my attention. Nevertheless, I hope it will serve as a useful guide to sources and material needed for research in this period of human history. Wherever in my annotation I thought it necessary or of value to include biographies and detailed information emphasizing reliability or importance of a work or its author, I did.

As a convenient classification, this compilation is divided into four sections.

Section I lists books on medicine, pharmacy, and allied sciences written in medieval Islam (but printed or edited later), or related to the progress of the health professions during that period. It also includes works devoted to the history of science

or Islamic culture in general, which present useful sources for understanding these intellectual developments.

Section II lists books containing socio-political data that provide background information for better evaluation of the medical and pharmaceutical advances of the period.

Section III lists general reference works: dictionaries, descriptive catalogs of printed books, incunabula, manuscripts, and other aids in locating source material.

Section IV lists current periodicals of particular or general interest to medicine and pharmacy in medieval Islam. It includes periodicals devoted to the general history of science and to the history of medical and natural sciences throughout the ages. Other listed periodicals are intended for oriental studies mainly related to the general civilization of Islam. These latter periodicals are included because they occasionally contain important articles on the health professions in Islam during the Middle Ages

All after-Hijrah dates, which follow the lunar system of reckoning, a system established by Caliph 'Umar (634—644), are mentioned with the abbreviation "A. H." This system of dating begins with the year 622, in which the prophet of Islam immigrated from Makkah (Mecca) to al-Madīnah, commencing the Islamic period. Otherwise, the dating is in accordance with the Christian reckoning.

For the transliteration of Arabic and Persian words and titles of books, I have followed, with very little modification, the system adopted by the Library of Congress, Processing Department, Cataloging Service, Bulletin 49, pp. 1—10, November 1958, Washington, D.C. Cross references will be used wherever necessary, especially with widely known, though incorrectly spelled, names such as Albucasis for Abū al-Qāsim al-Zahrāwī, and Avicenna for Ibn Sīnā. The regular entry will start with the last word in the name; e.g., Zahrāwī or Sīnā, etc.

As for the choice of editions and translations of extant medieval works, an attempt has been made to mention what is considered useful and for the most part known to be available in major libraries interested in such works.

Regarding the geographical area, this compilation includes publications on the development of medical knowledge and practice within the Islamic domain from the Iberian Peninsula and Morocco in the west to Irān (Persia), Pakistan, and Afghanistan in the east. In time, it covers the general period from about the 7th through the 14th centuries. During this era, especially from the 9th to the 11th centuries, Islamic civilization displayed one of the most brilliant epochs in human cultural achievement and the appreciation of it.

The contents of this bibliography are arranged as follows: entries in the first three sections include author(s) or editor(s), title, place and date of publication and in the majority of cases the name of the publisher or the agency under whose auspices the work was made available, but no pagination. In the last part (Section IV) the name of the periodical is entered on the first line together with the place and date of issuance. This is followed by a brief annotation indicating whether or not the periodical is an organ of a particular society or organization, together with the aims and scope of the subject matter.

I most gratefully acknowledge the obligation I am under to Professor Georg E. Dann, of Kiel, Federal Republic of Germany. In addition to his numerous obligations, Dr. Dann took the time to review and supervise the publication of this work. I also wish to thank Professor H. Schipperges and Miss Marissa Richardson for reviewing the whole manuscript before mailing it for publication. I am likewise indebted to the Smithsonian Institution's library staff for their assistance in acquiring the works needed for the preparation of this bibliography.

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Washington, D.C.
January 1964

Books on Medicine and Pharmacy

Abu Ganima, Mohammad Subhi

Abul-Kasim ein Forscher der arabischen Medizin. Berlin, 1929

An excellent survey of the medical and cultural development in Spain under the Western caliphate (929—1031). Emphasizes and evaluates *al-Taṣrīf liman ‘Ajiḡa ‘an al-Tāliḡ* of Abū al-Qāsim al-Zahrāwī (d. ca. 1013), especially his surgical treatise, the last in this medical encyclopedia written about the end of the 10th century.

Abulcasis (or Albucasis), see al-Zahrāwī, Abū al-Qāsim Khalaf

Abū al-Faraj, Gregorius, see Bar Hebraeus.

Aegineta, Paulus, see Paulus.

Afnan, Soheil M.

Avicenna, His Life and Works. London, Allen and Unwin, 1958

Ibn Sīnā's (980—1037) impact on philosophical thought and metaphysics of later generations is well presented. The evaluation of his medical writings, however, leaves much to be desired. Nevertheless, Afnan has succeeded in showing Ibn Sīnā as "the product of the impact of Greek thought on Islamic teachings against the background of the Persian Renaissance in the 10th century". It includes a selected bibliography (pp. 291—294).

Aḡmad, Maṣṣūr ibn Muḡammad ibn

Taṣhrīḡ Insān.

This work (completed in Persia, 1423), contains seven sections on the anatomy of the human body with a number of beautiful illustrations. It was published in Luchnow, India, 1873.

Ahwānī, Aḥmad F. al-

Ibn Sīnā. Cairo, Dār al-Ma‘ ārif, 1958

A useful survey of the life and works of Ibn Sīnā (Avicenna).

Ainslie, Whitelaw

Materia Indica. 2 vols., London, Longman, 1826

Entitled also “Some account of those articles which are employed by the Hindoos and other Eastern nations, in their medicine, arts, and agriculture.” Volume 2 (pp. 491—527), contains a list of works related to medicine and allied sciences that were published in various Eastern languages.

Akfānī, Shams al-Dīn Muḥammad ibn al-

Nukhab al-Dhakhā’ ir fī Ahwāl al-Jawābir.

Al-Akfānī of Egypt (d. 1348) wrote several treatises related to the medical field. His *Nukhab*, however, pertains to the history of mineralogy and precious stones. It was edited with annotations, by Anastase-Marie de St.-Élie, and published under the title *Choix des trésors enfouis dans la connaissance des pierres précieuses* (Cairo, 1939).

‘Alī ibn ‘Isā al-Kaḥḥāl, see ‘Isā, ‘Alī ibn

‘Alī, Zakī

Risālat al-Ṭibb al-‘Arabī. Cairo, 1931

This booklet on the message of Arabic medicine gives useful short biographies of eminent physicians in medieval Islam. However, it over-emphasizes the influence that medical development of this period had on the West.

Allbut, Thomas C.

The Historical Relations of Medicine and Surgery to the End of the Sixteenth Century. London and New York, MacMillan, 1905

A valuable address delivered at the St. Louis Congress in 1904, but has limited value to students of the Islamic period.

Ampreux, Pierre Joseph

Essai historique et littéraire sur la médecine des arabes. Montpellier, 1805

A valuable survey of medical development in Islam. Approximately 500 bibliographic entries are included.

Anawati, Georges C.

Mu' allafāt Ibn Sīnā or *Essai de bibliographie Avicennienne.* Cairo, Dār al-Ma'ārif, 1950

Important guide list published under the auspices of the Educational Department of Jāmi'at al-Dwal al-'Arabiyyah. It was forwarded by Aḥmad Amīn with introduction by Ibrāhīm Madkūr. Title in Arabic and French.

La Médecine arabe jusqu'au temps d'Avicenna dans les mardis de Dār al-Salām. Cairo, 1956

A reliable and useful survey.

Tārīkh al-Ṣaydalāh wāl-'Aqāqir fī al-'Abd al-Qadīm wal-'Aṣr al-Wasīt, or *Drogue et médicaments dans l'antiquité et le moyen âge,* *bibliothèque médicale.* Cairo, Dār al-Ma'ārif, 1959

Ten lectures on the history of pharmacy, given at the College of Pharmacy in Alexandria, Egypt, 1955—1959, which inaugurated the establishment of the Society of the History of Medicine in Egypt. Useful survey that traces the origins, definition and development of drugs and the preparation and uses of medications from ancient times to the end of the medieval Islamic period. It is especially reliable with relation to ancient Egypt and Islam.

Anawati, M. M., see Anawati, G. C. above

Anṭākī, Dawūd ibn 'Umar al-

Tadhkirat ulī al-Albāb wāl-Jāmi' lil-'Ajab al-'Ujāb

Al-Anṭākī, a blind physician of Antioch who lived for some time in Egypt and died in Mecca in 1599, was one of the most distinguished medical compilers of his time in Syria, Egypt, and Arabia, in a period of cultural stagnation in the Arab world.

The *Tadbkirat*, which describes over 1700 simple drugs, is the best known of his writings in which he tried to revive the medical works of his predecessors and explained how he became interested in the study of medicine. It consists of an introduction, four chapters and an epilogue, and was completed by some of Anṭākī's disciples who added a supplement. First edition, 3 vols., Cairo, 1281 A. H. (1864); second edition, 2 vols., Cairo, Būlāq, 1294 A. H. (1877).

‘**Arīb ibn Sa‘īd**, see Qurṭubī, Arīb ibn Sa‘īd al-Kātib al-

Arnaldez, Roger

La Pharmacopée arabe. Paris, université de Paris, 1958

This short essay, whose title promises much more than it actually offers, constitutes No. 57 of Series D of “Les Conférences du Palais de la Découverte,” dedicated to the history of science.

Arnold, Thomas, and Guillaume, Alfred, (editors)

The Legacy of Islam. First impression, Oxford, the Charendon Press, 1931

This compilation of articles on Islamic culture contains a very useful chapter on “Science and Medicine” by Max Meyerhof, pp. 311—355 (Oxford University Press, 1952).

Artelt, Walter

Einführung in die Medizinhistorik, ihr Wesen, ihre Arbeitsweise und ihre Hilfsmittel. Stuttgart, Enke, 1949.

A useful and reliable guide to sources and references relating to international medical history.

Index zur Geschichte der Medizin, Naturwissenschaft und Technik. Vol. 1, Munich, Urban and Schwarzenberg, 1953

First in a series of volumes on medicine, pharmacy and related sciences, published under the auspices of the Deutschen Vereinigung für Geschichte der Medizin, Naturwissenschaft und Technik in co-operation with Johannes Steudel and others.

‘Arūdī, al-Nizāmī al-

Jahār Maqālāh

This 12th-century Persian work contains several biographies of Muslim physicians. It was translated into Arabic by ‘Abd al-Wahhāb ‘Azzām (Cairo, 1949), and into English by E. G. Browne (London, Luzac, 1921).

Aṣma‘ī, ‘Abd al-Malik ibn Qurayb al-

Kitāb al-Khayl

One of the earliest extant studies on horses written in Islam. Al-Aṣma‘ī (740—828) of Baṣrah, Iraq, wrote several treatises dealing with natural history and philology, such as *On the Camel*, *On the Making of Man*, and *On Wild Beasts*. This book on horses was edited by August Haffner (Vienna, 1895).

Al-Nabāt wāl-Shajar

On plants and trees. Edited by August Haffner (Beirut, 1898 and 1906).

‘Aṭṭār, Abū al-Munā ibn Abī al-Naṣr Kohen al-

Minhāj al-Dukkān wa-Dustūr al-‘Yān wa -Tarkīb al-Adwiyah al-Nāfi‘ah Lilabdān.

Completed about 1259, *al-Minhāj* is considered to have been one of the most important compendiums and guides for pharmacists in late medieval Islam. It gives directions for compounding medicines and conducting the various activities in a drug store. The work consists of 25 sections on professional ethics, weights and measures, medical therapy, and materia medica, as well as chapters devoted to pharmaceutical dosage forms, such as powders, tablets, and suppositories. It appeared in many editions, of which some are undated; a useful one was published in Cairo, Būlāq, 1287 A. H. (1870/1871) and was reprinted ten years later. See also the two editions: Cairo, Sharaf Press, 1305 A. H. (1888), and Cairo, Ḥusayniyyah, 1330 A. H. (1912).

Averroës; see Rushd, Abū al-Walīd Muḥammad ibn

Avicenna; see Sīnā, Abū ‘Alī al-Ḥusayn ibn

‘Awwām, Yaḥyā ibn Muḥammad ibn al-

Kitāb al-Filāḥah

The Lebanese scholar and bibliographer Michael Casiri (al-Ghazīrī) was in 1760 the first to suggest the importance of the Escorial manuscript of *al-Filāḥah* by al-‘Awwām of Seville (flourished in late 12th century). This work on agriculture in Spain is considered one of the most important publications of its kind in the Middle Ages. In the introduction, the author mentions his acquaintance with earlier contributions on the subject. He probably was greatly influenced by his predecessor and fellow countryman, Ibn Baṣṣāl, of the late 11th century. Several chapters in *al-Filāḥah* are concerned with the cultivation and identification of medicinal plants. The book was edited by José Antonio Banqueri in Spanish translation (2 volumes, Madrid, 1802; re-edited, 2 volumes, Seville, 1878). It was also translated into French by J. J. Clement-Mullet, *Le Livre de l'agriculture* (2 volumes in 3 parts, Paris, 1864—1867). Both the Spanish and French translations are rather poor.

Baas, J. Hermann

Grundriss der Geschichte der Medicin und des Heilenden Standes.
Stuttgart, Enke, 1876

One of the best 19th century single-volume surveys on the subject. It includes a chapter (pp. 172—195) on the Islamic period. It was translated into English by H. E. Handerson, *Outlines of the History of Medicine and the Medical Professions* (New York, Vail, 1889).

Baghdādī, ‘Abd al-Laṭīf ibn Yūsuf al-

Al-Ifādah wāl-I’tibār fī al-Umūr al-Mushabadah wāl-Ḥawādith al-Mu‘āyanah bi-Arḍ Miṣr.

Chronicles of the land and peoples of Egypt written in the first quarter of the 13th century provides first hand information of interest to the historian of medicine in Islam. The work was

edited by T. Hyde, Oxford, 1702, and by J. White, *Historia Egypti, Compendium Arabice et Latine* (Oxford-London, 1800). Also deserving of mention is the elaborate study by Sylvestre de Sacy, *Relation de l'Égypte par Abd-Allatif médecin de Bagdad* (Paris, 1810). The *Ifādah* was later edited in Cairo, Būlāq, 1286 A. H. (1869).

Baghdādī, ‘Alī ibn Hubāl al-. See Hūbāl, ‘Alī ibn Aḥmad ibn.

Bakhtīshū‘, ‘Ubayd Allāh ibn Jibrīl ibn

Al-Rawḍah al-Ṭibbiyyah

‘Ubayd Allāh (d. 1058) is a scion of the renowned Nestorian family, the Bakhtīshū‘. Since the second half of the 8th century and for over three centuries, this family produced many eminent physicians who helped promote the profession’s prestige during this period.

This work contains 50 definitions of philosophical and medical subjects, and which he dedicated to his patron Abū al-Ḥasan Muḥammad ibn ‘Alī. It consists of a synopsis to an earlier and more detailed work entitled *Tadhkirat al-Ḥādīr wa-Zād al-Musāfir*. The *Rawḍah* was edited from three Arabic manuscripts by Paul Sbath in Cairo with introduction and notes, and published in *Bull. Institut d’Égypte*, 8 (1926–27), pp. 21–43. See also Max Meyerhof, “An Arabic Compendium of Medico-Philosophical Definitions,” *Isis*, 10 (1928), pp. 340–349.

Bar Hebraeus, Abū al-Faraj Gregorios (ibn al-‘Ibrī)

Tārīkh Mukhtaṣar al-Dīnval

Bar Hebraeus (1226–1286), one of the most learned and versatile men of his time in Syria, was a physician, philosopher, historian and christian theologian. He wrote chiefly in Syriac. His original and more comprehensive history of the world was translated from Syriac into English by Ernest A. W. Budge (vol. 1, Oxford, 1932). On request, Bar Hebraeus subsequently rewrote the abridged *Tārīkh* in Arabic. This new version consists of ten sections, the last two on Muslim chronicles and the mogul kings, and in which he also devotes a good deal of attention to medical matters. In several biographies of physicians,

however, he quotes verbatim from Ibn al-Nadīm (d. 995), al-Qiftī (1172—1248) and Ibn Abī Uṣaybi‘ah (1203—1270). This work was edited with Latin translation by E. Pocock (2 vols., Oxford, 1663). Then the first volume (containing the Arabic text) was republished in a better edition with indices and charts by Anṭūn Ṣaliḥānī (Beirut, Catholic Press, 1890).

Baron, Salo Wittmayer (editor)

Essays on Maimonides. New York, Columbia University Press, 1941

Of special interest to our subject is chapter 7 on “the medical works of Maimonides,” by Max Meyerhof. The book is a collection of addresses given at the celebration of the 800 anniversary of the birth of Ben Maymūn and articles written shortly thereafter. For more on Maimonides (1135—1204), see Maymūn, Mūsā (Mosheh) ben.

Baṣṣāl, Abū ‘Abd Allāh Muḥammad ibn Ibrāhīm ibn

Kitāb al-Filāḥah

Ibn Baṣṣāl, a great botanist from Muslim Toledo, wrote this remarkable work most probably about the middle of the 11th century. It was edited by José Maria Millás Vallicrosa, and Mohamed Aziman with a Spanish translation and useful annotations and bibliographical notes under the title *Libro de agricultura* (Tetuan, Morocco, Instituto Muley al-Hasan, 1955).

Bayān, Sadīd al-Dīn Abū al-Faḍl Dawūd ibn Sulaymān ibn Abī al-

Al-Dustūr al-Bimāristānī

Ibn Abī al-Bayān (1161—ca. 1241) acquired a good reputation in the knowledge of materia medica of his time. He was a leading physician at the famous Nāṣirī hospital of Cairo and served the Ayyubid king al-‘Adil (reigned 1199—1218). His *Dustūr* (known also as *al-Aqrābādḥīn*) is composed of 12 sections on the compounding and dispensing of the various medicines. It was used as a formulary by pharmacists in hospitals and private drug stores in Egypt, Syria, and Iraq. Uṣaybi‘ah

(d. 1270), who studied under Ibn Abī al-Bayān, helped the latter in the compilation of this book which superseded in importance the 9th century *Aqrābādhīn* of Sabūr ibn Sahl, and the enlarged compendium on drugs of Ibn al-Tilmīdh (d. ca. 1154). Soon thereafter, the concise *Dustūr* was surpassed by the more comprehensive *Minhāj al-Dukkān* of Kohen al-‘Aṭṭār. The *Dustūr* was published by Paul Sbath under the title “Le Formulaire des hopitaux d’Ibn Abil Bayan médecin du bimaristan An nacery au Caire au XIII^e Siècle,” in *Bulletin de l’Institut d’Egypte*, 15 (Cairo, 1933), 13—78. See also Martin Levey, “Arabic Dental Pharmacotherapy at the Turn of the 12th Century,” *Janus*, 49 (Leiden, 1961), 101—103.

Bayhaqī, Zāhir al-Dīn ‘Alī ibn Abī al-Qāsim Zayd al-

Tatimmat Šiwān al-Ḥikmah

This biographical work on eminent men in Islam is a supplement to *Šiwān al-Ḥikmah* of Abū Sulaymān Muḥammad ibn Ṭāhir al-Sijazī (flourished in the second half of the 10th century) and follows the same chronological order. It begins with a biography of Ḥunayn ibn Ishāq (809—873). However, the biographies of 11 th century doctors and those of Bayhaqī’s (1105/6—1169/70) own time seem to be more reliable. For more detail see Max Meyerhof, “‘Alī al-Bayhaqī’s *Tatimmat Šiwān al-Ḥikma*, a Biographical Work on Learned Men of the Islam,” *Osiris*, 8 (1948), 122—216. The *Tatimmat* was edited by Muḥammad Shafi‘ī with a translation into Persian and was published by the Punjab University, Series No. 20 (Lahor, 1351 A. H. (1932/3)). See also the edition by Muḥammad Kurd ‘Alī under the title *Tāriḫ Ḥukamā’ al-Islām* (Damascus, 1946).

Bayṭār, ‘Abd Allāh ibn Aḥmad ibn al-

Al-Jamī‘ li-Mufradāt al-Adwiyah wāl-Aghdhiyah

This is a comprehensive work on simple remedies, their origin, identification, and medical treatment by drugs and diet, with entries arranged according to the Arabic alphabet. It was written by Ibn al-Bayṭār (died in Damascus, 1248) under the patronage of al-Malik al-‘Adil or more probable his son

al-Šālih of Egypt (reigned 1218—1249) whom he also served as chief botanist in Cairo. In the introduction, ibn al-Bayṭār mentions his thorough acquaintance with the works of Dioscorides, Galen and writers in Islam on materia medica and diet. Thereafter, he describes the motives and aims which led him to undertake such a work and criticizes the errors and omissions made by his predecessors. In several entries he includes his findings and personal observations and interpretations. This work was edited in 2 vols. (4 parts), Cairo, Būlāq, 1291 A. H. (1874). It was translated into German by Joseph V. Sontheimer under the title *Grosse Zusammenstellung über die Kräfte der bekannten einfachen Heil- und Naturungsmittel von... Ibn Baithar* (2 vols., Stuttgart, Hallberger, 1840—1842). It was also translated into French with a very useful introduction and notes by Lucien Leclerc, under the title *Traité des simples par Ibn el-Beithar* (3 vols., Paris, 1877—1883), published by the Institut National de France.

Bayṭār, Abū Bakr ibn al-Mundhir Badr al-Dīn al-

Kashf al-waylay fi Ma'rifat Amrāḍ al-Khayl

On the diseases of horses and their treatment written for Sultan Qalāwūn (1309—40), edited by Reinhard Froehner as volume 23, *Abhandlungen aus der Geschichte der Veterinarmedizin* (Leipzig, Richter, 1931).

Beauzamy, Pierre

Geber, le maître de Rhazes et des médecins chimistes du moyen âge. Paris 1945

A thesis (44 p.) presented to the Paris Université, Faculté de Médecine.

Ben Yahya, M. Boubakr

Aperçu sur la "Période Arabe" de l'histoire de la médecine. Paris, 1953

A useful essay (36 pp.) read at the history of science "Conférence faite au Palais de la Découverte," November 8, 1952, Series D, No. 19 and published by the University of Paris.

Berendes, Julius

Die Pharmacie bei den alten Culturvölkern. 2 vols., Halle, Tausch & Grosse, 1891

Illustrated historical and critical studies.

Bergsträsser, Gotthelf

Ḥunain ibn Ishāq über die syrischen und arabischen Galenübersetzungen zum erstenmal herausgegeben und übersetzt. Leipzig, Brockhaus, 1925

Ḥunayn wrote this epistle in 856, edited with German translation.

Ḥunain ibn Ishāq und seine Schule. Sprach- und Literaturgeschichtliche Hippokrates — und Galenübersetzungen. Leiden, Brill, 1913

Important study on the transmission of Greek medical legacy to the Arabic in the 9th century.

Neue Materialien zu Ḥunain Ibn Ishāq's Galen-Bibliographie. Leipzig, 1932

Bernus, Alexander F. von

Alchymie und Heilkunst. Nürnberg, Carl, 1948

This useful work on the history of alchemy and therapeutics was translated into French with annotations by Anne Forestier under the title *Alchimie et Médecine* (Paris, Danglis, 1960). It is mainly concerned with the modern Western period.

Berthelot, Marcellin

Introduction a l'étude de la chimie des anciens et du moyen âge, Histoire des Sciences. III, *La Chimie au moyen âge.* Paris, Imprimerie Nationale, 1893, Published under the auspices of the Ministère de l'Instruction Publique.

The part devoted particularly to alchemy in Islam (pp. 176—224), and which includes 13 Arabic alchemical treatises with translation by O. Houdas has been evaluated by J. E. Holmyard in his scholarly article, "A Critical Examination of Berthelot's Work upon Arabic Chemistry," *Isis*, 6 (1924), pp. 479—499.

Bertherand, Émile Louis

Médecine et hygiène des arabes. Paris, Bailliere, 1855

Deals mainly with medical and surgical practices and the uses of amulets and materia medica among the Muslim population of Algeria during the first half of the 19th century. Relatively unimportant.

Bīrūnī, Abū al-Rayḥān Muḥammad ibn Aḥmad al-

Fibrist Kutub Muḥammad ibn Zakariyyā al-Rāzī.

Critical bio-bibliography of al-Rāzī, edited by Paul Kraus (Cairo, Al-Qalam, 1936). See also Julius Ruska's "Al-Bīrūnī als Quelle für das Leben und Schriften al-Rāzī's," *Isis*, 5 (1923), pp. 26—50.

Kitāb al-Ḥajar.

This essay on the philosophical stone refers to the writings of Jābir on alchemy and confirms that the so called "Stone Book" of Aristotle is a forgery. For further detail see Moh. Yahia Haschmi's *Die Quellen des Steinbruches des Beruni* (Bonn, 1935).

Al-Jamābir fī Ma'rifat al-Jawābir.

This important treatise on gems, precious and semiprecious stones, and metals (Filizzāt), was published by the Osmania Bureau, Hyderabad, India, 1335 A. H. (1936/7). It relies heavily on an earlier work on the same topic by al-Kindī (d. ca. 873). It also refers to treatises attributed to Jābir ibn Ḥayyān and al-Rāzī (Rhazes). Here al-Bīrūnī (973—1048) mentions specific gravity of metals, the methods of making steel swords, ceramics, ceruse, and gives accurate description of fossils and sea shells of interest to the history of conchology.

Al-Ṣaydanah fī al-Ṭibb.

Al-Bīrūnī (973—1048), a contemporary of Ibn Sīnā, was one of the greatest scientists of Islam (see the *Commemoration Volume on the Millenary Anniversary of Abū al-Rayḥān al-Bīrūnī*, 326—1362 A. H. published under the auspices of the Iran Society, Calcutta, 1951). This work on pharmacy in the healing

art deserves great credit. It gives reliable information regarding the ethics, development and status of pharmacy in al-Bīrūnī's time. Max Meyerhof edited, translated and commented upon the introduction in an article under the title, "Das Vorwort zur Drogenkunde des Beruni," *Quellen und Studien zur Geschichte der Naturwissenschaften und der Medizin*, vol. 3 pt. 3 (Berlin, 1932), pp. 159—208. See also Bedi N. Şehsuvaroglu, "Abû Rayhân Bīrūnī ve 'Kitâb al-Saydala'," *Istanbul Üniversit. Tıp. Fak. Mec.* (1959), 1010—1030.

Bishop, William John

The Early History of Surgery. London, Hale, 1960

This illustrated book gives very little on the development of this art in Islam.

Blatter, Ethelbert

Flora Arabica. Records of the Botanical Survey of India, vol. 8, pts. 1—3, Calcutta, 1919—1921, and pts. 4—5, Delhi, 1923—1936

Useful for the study of the origin and identification of botanical drugs in Arabia and it shows relationships to Indian medical botany.

Bloom, Asher

L'Ostéologie d'Abul-Qasim et d'Avicenna son origine talmudique. Suivie d'un chapitre sur l'anatomie dans le talmud. Paris, Lipschutz, 1935

This short essay explains the Talmudic origin of al-Zahrāwī's and Ibn Sīnā's estimate that there are over 248 bones in the human body. It was presented at the Xth International Congress on the History of Medicine, held in Madrid, 1935.

Bouloumoy, L.

Flore du Liban et de la Syrie. 2 vols., Paris, Vigot, 1930

This illustrated work stresses contemporary medical botany.

Brockelmann, Carl

Geschichte der arabischen Litteratur. 2 vols., Weimar, Felber, 1898—1902; 3 vols. supplement, Leiden, Brill, 1937—1942; and 2nd ed., 2 vols., Leiden, Brill, 1943—1949

Indispensable work for any research in this period. The biobibliography survey covers all areas of Islamic civilization and gives useful leads to libraries and the manuscripts housed therein.

Browne, Edward G.

Arabian Medicine. Cambridge, Eng., University Press, 1921

A brief but useful survey of medical development in Islam. First presented as the Fitzpatrick Lectures of 1919—1920. It was translated into French with additional valuable annotations by H. P. J. Rénaud, under the title *Le Médecine Arabe*, Paris, Larose, 1933.

Bugge, Günther

Das Buch der Grossen Chemiker. Vol. 1, Berlin, Verlag Chemie, 1929

Contains biographies of some Muslim alchemists including Jābir ibn Ḥayyān (720—800) and the celebrated physician Muḥammad Abū Bakr al-Rāzī.

Buṭlān, Abū al-Ḥasan al-Mukhtār ibn

Daʿwat al-Aṭibbā

Manuscript copies of this epistle, which is in the form of an address by Ibn Buṭlān (d. ca. 1068) to the physicians of his time, exist in many libraries. In style this work follows that of *Kalīlah wa-Dimnah*. It was first edited by Bishārah Zalzal (Alexandria, Egypt, Khedive Press, 1901). It was translated into French from the same manuscript in Alexandria, Egypt, by Muḥammad Ṣudqī (Cairo, 1928), and was edited with other works in Beirut, Lebanon, n. d.

Taqwīm al-Ṣiḥbah

Contains discussion on medical treatment, diet, and hygiene in the form of charts. It was translated and published with beautiful illustrations under the title *Theatrum sanitatis* (2 vols., Rome, Libreria dello Stato, 1940).

Campbell, Donald

Arabian Medicine and its Influence on the Middle Ages. 2 vols., London, Paul, Trench, Trubner, 1926

Volume I discusses the development of Arabic medicine, with short biographies of eminent physicians of the Islamic period. It also explains the tide of Arabism in the intellectual currents of Medieval Europe. Volume 2 is devoted to Latin translators of Arabic works and an investigation of the writings of Galen. Not always accurate but useful.

Caron, M., and Hutin, S.

Les Alchimistes. Paris, Seuil, 1959

The discussion on the history of early chemistry is valuable.

Carra de Vaux, Bernard

Avicenna. Paris, Alcan, 1900

Mainly on the philosophy of Ibn Sinā.

Cazenave, Jean

Legs de la médecine arabe à la thérapeutique française du moyen-âge.
Alger, Algeria, 1941

A useful thesis on the medical legacy of medieval Islam.

Chassinat, Emile (editor and translator)

Un Papyrus médical Copte. Cairo, 1921

This Coptic papyrus, by anonymous 10th century physician, is a formulary of general therapy containing 237 formulas in 420 lines. It sheds light on the development of medical therapy and pharmaceutical preparations of the time in Egypt. It was published as Vol. 32 of the *Mémoires Publiés par les membres de l'Institut Français d'Archeologie Orientale du Caire*.

Chéhadé, Abdul-Karim

Ibn an-Nafīs et la découverte de la circulation pulmonaire

Damascus, Institut français de Damas, 1955.

Contains a biography of Ibn al-Nafīs (d. 1288) and a facsimile of the Arabic text of his discussion on the pulmonary circulation from a manuscript at the Zahirīyyah Library in Damascus. The reader may also wish to refer to Max Meyerhof, "Ibn an-Nafīs und seine Theorie des Lungenkreislaufs," *Quellen und Studien zur Geschichte der Naturwissenschaften und Medizin*, 4 (Berlin, 1935),

pp. (37)—88 German and 15 pp. Arabic text; and E. Edward Bittar, "A Study of Ibn Nafis," *Bulletin of the History of Medicine*, 29 (1955), pp. 352—368 and 429—447.

Cherif, Ahmad

Histoire de la médecine arabe en tunisie. Bordeaux, France, 1908

This useful thesis includes such figures as the celebrated physician Ishāq ibn 'Imrān of Baghdād, who served prince Ziyādat Allāh the Aghlabid (903—907) as court physician, and Aḥmad ibn al-Jazzār (d. 1009) of al-Qayrawān.

Cherif, Tarabein

Contribution à l'histoire de la pharmacie arabe. Strasbourg, 1953

This book emphasizes the life and writings of Muḥammad ibn 'Alī al-Samarqandī (d. 1222) especially his formulary *al-Najībīyyāt al-Samarqandīyyah*. However, a better known of Samarqandī's works is his *al-Asbāb wāl-'Alāmāt* on diseases, their diagnosis and treatment, in which he was greatly influenced by al-Majūsī (d. 994) and Ibn Sīnā (980—1037).

Chopra, R. N., et al.

Chopra's Indigenous Drugs of India. 2nd ed. revised, Calcutta, 1958

A pharmacognosy text book which evaluates present Indian indigenous drugs, their uses and their effect on the country's economy and the development of industries. Also it is useful in identifying crude drugs used in the Middle Ages.

Choulant, Ludwig

Geschichte und Bibliographie der anatomischen Abbildung nach ihrer Beziehung auf anatomische Wissenschaft und Bildende Kunst. Leipzig, R. Weigel, 1852

This illustrated work was translated and annotated by Mortimer Frank with added essays (New York, Schuman, 1945, reprinted, New York, Hafner, 1962).

Handbuch der Bücherkunde für die ältere Medizin. Leipzig, L. Voss 1841; reprinted in facsimile at Munich, 1926

This useful bibliography begins with the works of Hippocrates, followed by subsequent medical authors who wrote in Greek, Latin, Arabic, and Persian. It also lists collections and lexicons.

Clot, Antoine Barthélemy

Dustūr al-A'māl al-Aqrābādhīniyyah. Cairo-Paris, 1837

This is probably the earliest modern unofficial formulary to be adopted as a textbook for practitioners in Egypt. Its influence on Egyptian pharmacy during the 19th century is similar to that of the *Aqrābādhīn al-Kabīr* of Sābūr ibn Sahl (d. 869) on medieval Islam.

Cumston, Charles G.

An Introduction to the History of Medicine. New York, 1927

The brief survey (pp. 185—211) on Arabic medicine gives a general view of the period and makes good reading.

Damīrī, Muḥammad ibn Mūsā Kamāl al-Dīn al-

Ḥayāt al-Ḥayawān al-Kubrā

The Egyptian al-Damīrī (d. 1405) was a zoologist as well as a man of letters whose scientific writings were mingled with astrological interpretations and superstitions. See Joseph de Somagyi, "Ad-Damiri's Hayat al-Hayawan, An Arabic Zoological Lexicon." *Osiris*, 9 (1950), [33]—43. This work on animal life exists in three recensions: al-Ṣuḡhrā, al-Wustā and al-Kubrā. It was edited several times. In the second half of the 19th century two editions appeared: one in Tehran, Persia, 1868, and another in 2 vols., Cairo, Būlāq, 1309 A. H. (1891/2). Then an English translation was made by A. S. G. Jayakar (2 vols., London and Bombay, 1906—1908).

Darmstaedter, Ernst (editor and translator)

Die Alchemie des Geber. Berlin, Springer, 1922

German translation with notes and explanation of the Latin texts attributed to Geber. The author states that these writings do not belong to the Muslim alchemist Jābir ibn Ḥayyān. The book includes 10 plates.

Dhahabī, Muḥammad ibn Aḥmad al-, see Suyūṭī, Jalāl al-Dīn al-

Diepgen, Paul

Geschichte der Medizin. Vols. I—V (Part 1), Berlin and Leipzig, 1914—1928

Geschichte der Medizin. Die historische Entwicklung der Heilkunde und des ärztlichen Leben. Vols. I and II (Parts 1, 2), Berlin, 1949—1955

Both series represent a remarkable undertaking. However, they are of more interest for medical history of the Renaissance and modern times than for that of medieval Islam.

Dietrich, Albert

Zum Drogenhandel im islamischen Ägypten, eine Studie über die arabische Handschrift nr 912 der Heidelberger Papyrus-Sammlung. Heidelberg, 1954

Discusses the etymology and history of medical and pharmaceutical terms, but is narrow in scope.

Dijany, Husam Wafa

Geschichte der arabischen Medizin in Spanien. Hamburg, 1934

This inaugural dissertation to the faculty of medicine at the University of Hamburg gives a useful survey of contributions to surgery, medical botany and the healing art.

Dīnawārī, ‘Abd Allāh ibn Qutaybah al-

Kitāb al-Ashribah

This comprehensive work on wines by Ibn Qutaybah al-Dīnawārī (828/9—ca. 889) makes no mention of methods of distillation of alcohol (spirits). This omission favors the inference that alcohols were not known or prepared in 9th century Islam. The work contains several passages of interest for pharmacy and medical therapy. It was edited by Muḥammad Kurd ‘Alī (Damascus, 1947).

Kitāb al-Ma‘ārif

This work on universal history was edited in part by F. Wüstenfeld (Göttingen, 1850); it was then translated by L. Kopf and F. S. Bodénheimer under the title *Book of Useful Knowledge* (Leiden, Brill, 1949).



Figure 1. A page from a 13th-century Arabic manuscript of Dioscorides' *Materia Medica*, copied by 'Abd Allāh ibn al- Faḍl of Iraq. Courtesy of The Metropolitan Museum of Art, New York city.

‘Uyūn al-Akbbār

This selection of historical annals is probably the most important and best known of the writings of Ibn Qutaybah al-Dīnawārī. It is composed of ten treatises which include useful information on professional ethics, psychology, natural history, and materia medica. It was edited first by Carl Brockelmann (4 parts, Leiden, 1898—1908) and later by Aḥmad Zakī al-‘Adawī with an introduction (4 parts, Cairo, Dār al-Kutub, 1925—1930).

Dīnawārī, Abū Ḥanīfah Aḥmad ibn Dāwūd al-

Kitāb al-Nabāt

This work, primarily written for philological purposes, includes several passages of great interest to medical botany and the history of Arabic medicine. It was edited by Issa Aḥmad with a useful introduction and annotations under the title *Abu Hanifa el-Dinawari et son “Livre des Plantes”* (Vol. XVI, *Bulletin de l’Institut d’Égypte*, Cairo, 1933—1934), pp. 1—7, and was translated into German by B. Silberberg under the title *Das Pflanzenbuch des Abū Ḥanīfa al-Dīnawārī* (vols. 24—25, *Zeitschrift für Assyriologie*, 1910—1911). It was also edited by Bernhard Lewin from the unique manuscript at the University of Istanbul, with introductory remarks, notes, indices to part five and vocabulary (Uppsala-Wiesbaden, 1953).

Dioscorides, Pedanios

Materia Medica

The original Greek was written in about 65 A. D. in five books: I. Aromatics, oils, ointments, trees; II. Living creatures, dairy products, cereals and herbs; III. and IV. Roots, juices and medicinal herbs; V. Wines and minerals.

A major part of this work was translated into Arabic in about 855 by Iṣṭifān ibn Basīl and was corrected by Ḥunayn ibn Iṣḥāq. This Arabic version of Dioscorides greatly influenced the development of medical botany and therapy in Islam. Recently, this version was edited by E. César Dubler and Elías Terés under the title *La “Materia Médica” de Dioscorides* with translation, annotations and indices (5 vols., Tetuan-Barcelona, 1952—1957).

Another incomplete Arabic translation was made shortly after 951 in Cordova, Spain. See Lucien Leclerc, *De la traduction arabe de Dioscorides* (Paris, 1867), and Max Meyerhof, "Die Materia Medica des Dioskurides bei den Arabern," *Quellen und Studien zur Geschichte der Naturwissenschaften und der Medizin*, 3 (Berlin, 1933), pp. 72—84.

This work was held in high repute for almost 15 centuries after it was written and it has been translated into several languages. A Latin translation with a commentary and the Greek text was published by K. P. Sprengel (2 vols., Leipzig, Cnoblochii, 1829—1830) as volumes 25 and 26 of the *Medicorum Graecorum Opera*, instituted by C. G. Kühn. An English translation from a Byzantine beautifully illustrated manuscript dated 512, was made by John Goodyer, 1655, and was edited and first published in London, Robert T. Gunther, 1934 (reprinted, New York, Hafner, 1959). It is to be regretted, however, that no attempt has been made to modernize the English of Goodyer's original version. A reprint of this archaic 17th-century English serves no purpose, since the flavor of the original translation abounds in the numerous extant copies of the 1934 edition.

An excellent German translation, *Des Pedanios Dioskurides aus Anazarbas Arzneimittellehre in fünf Büchern*, was made by Julius Berendes (Stuttgart, 1902). Also deserving mention is the Greek text edition by Max Wellmann under the title *Pedanii Dioscuridis Anazarba, De Materia Medica Libri Quinque* (3 vols., Berolini, 1907—1914), and reprinted by August Raabe (3 vols., Berlin-Charlottenburg, Neukolle, 1958). It includes preface in Latin and indices.

The term *materia medica*, when used in my other annotations in this bibliography, denotes that branch of medical sciences which deals mainly with crude drugs, their origin, identification and classification as natural products, and their preparation. It also treats the administration and action of drugs as remedial agents employed for the relief and cure of diseases.

Djelal ed-Din, Abou Soleiman Daoud, *La Médecine du Prophète* See Suyütî, Jalâl al-Dîn al-

Dragendorff, George J. N.

Die Heilpflanzen der Völker und Zeiten, ihre Anwendung, Wesentlichen Bestandtheile und Geschichte. Stuttgart, Enke, 1898

The most comprehensive modern compilation of the plant lore of the world ever written up to the early 20th century.

Ducros, A. H.

Essai sur le droguier populaire arabe de l'inspection des pharmacies du Caire. Cairo, 1930

Discusses folk medicine and drug uses among the masses in Cairo and other centers in early 20th-century Egypt. Published as Volume 15 of the *Mémoires de l'Institut d'Égypte*.

Dupouy, E.

Le Moyen Âge médical. Paris, 1888

Of special interest to medical development in the West.

Elgood, Cyril

A Medical History of Persia and the Eastern Caliphate from the Earliest times until the Year A. D. 1932. Cambridge, University Press, 1951

Under the caliphs, Persia enjoyed what was perhaps the brightest cultural period of its long history. This valuable work, although not always accurate, is one of the best on the subject.

Ergin, Osman

Ibn Sina Bibliografyası. Istanbul, Turkey, 1956

Includes a foreword in French, titles of Ibn Sīnā's listed writings in Arabic and the libraries in Turkey where such writings could be found.

Farber, Eduard (editor)

Great Chemists. New York-London, Interscience Publishers, 1961

Approximately 95 scholars contributed to this long-awaited compilation of essays in English on the history of chemistry and

biographies of chemists from ancient mesopotamia to the present century. For the period of our interest see Martin Levey, "Arabic Chemists," pp. 13—38.

Fernández Martínez, Fidel

La medicina árabe en España. Barcelona-Granada, Spain, Editorial Juventud, 1936

Illustrated medical history, containing plates, facsimiles, and a useful bibliography.

Fischer, Hermann

Mittelalterliche Pflanzenkunde. Munich, 1929

A reliable source on the history of medical synonyms and terminology of materia medica employed in the Middle Ages.

Flückiger, Friedrich A., and Hanbury, Daniel

Pharmacographia: A History of the Principal Drugs of Vegetable Origin in Great Britain and India. 2nd ed., London, MacMillan, 1879

After almost a century, this reference is still useful particularly for its presentation of the history of drugs.

Flügel, Gustav

Al-Kindī, genannt "der Philosoph der Araber." Ein Vorbild seiner Zeit und seines Volkes. Leipzig, Brockhaus, 1857. Published as part of volume I. *Abhandlungen für die Kunde des Morgenlandes.*

This discourse gives a valuable bio-bibliography of Ya'qūb al-Kindī (d. ca. 873) with special reference to the bibliography given by Ibn al-Nadīm in his *Fihrist*.

Folch Jou, Guillermo

Historia de la farmacia. Madrid, 1951

Discussion of Spanish Pharmaceutical development from the 14th century on, is very adequate. However, information concerning pharmacy during the Islamic period seems rather shaky.

Fonahn, Adolf

Zur Quellenkunde der persischen Medizin. Leipzig, Barth, 1910
A useful catalog of sources on the subject.

Forbes, R. James

Short History of the Art of Distillation. Leiden, Brill, 1948

This valuable book includes mention of such Muslim physicians and alchemists as al-Rāzī (d. ca. 932), who wrote on the processes, materials, and equipment used in distillation.

Fort, George F.

Medical Economy During the Middle Ages. London, New York, Bouton, 1883

This well documented work covers the first 14 centuries of the Christian era. It is especially useful when dealing with the Roman period and the Middle Ages in Europe, being "a contribution to the history of European morals, from the time of the Roman Empire to the close of the fourteenth century."

Frothingham, Alice Wilson

Apothecaries' Shops in Spain. New York, Notes Hispanic, 1941

Describes the evolution of pharmacy shops in Spain from the 13th to the 18th centuries. Contains very little data relating to the Islamic contribution.

Freind, Johannis

The History of Physick, from the Time of Galen to the Beginning of the Sixteenth Century. 2 vols., London, Walthoe, 1726—1727

One of the earliest reliable sources on the history of medicine of this period in the English language. It devotes several chapters to Arabic medicine.

Galen of Pergamon

Galen (Galenos) was born at the famous Hellenistic cultural center of Pergamon (Pergamum, Asia Minor), 46 miles north of Smyrna, in 129—130. He died about 200. The writings of

this great physician-philosopher were destined to dominate medicine for more than thirteen centuries. His extant corpus in Greek, with an excellent Latin translation, was completed by Carolus Gottlob Kühn et al. under the title *Claudii Galeni Opera Omnia* (20 vols., Leipzig Cnoblochii, 1821—1833). The major part of Galen's writings was rendered into Arabic in the 9th century. The greatest credit for this remarkable undertaking is due to the sedulity of the physician-translator Ḥunayn ibn Ishāq. Galen's influence on medical development in Islam can hardly be exaggerated.

It is of interest to note at this point, however, the fact that a few of the lost Greek treatises of Galen are extant in Arabic. One was edited with English translation and useful annotations by Richard Walzer under the title *Galen on Medical Experience* (London, Oxford Univ. Press, 1944). A part of discourse IX and discourses X—XV of Galen's anatomical work, which is known in Latin as *De Anatomicis Administrationibus*, is also extant only in Arabic translation, entitled *al-Tashrīḥ al-Kabīr*. It was edited with an introduction, a German translation, and a useful Arabic-Greek-German vocabulary, by Max Simon, with the title *Sieben Bücher Anatomie des Galen* (Leipzig, 1906). The Arabic text as established by Simon and the German version formed the basis for the recent English translation by W. L. H. Duckworth, edited by M. C. Lyons and B. Towers, under the title *Galen on Anatomical Procedures* (Cambridge, Eng., University Press, 1962). See also Charles Singer's *Galen on Anatomical Procedures* (London, Oxford University Press, 1956), which includes the translation of the only surviving discourses of this work in Greek: books I—VIII plus 5 chapters of book IX, with introduction and notes.

Regarding Syriac and Arabic versions of Galen's works the reader may wish to consult the two articles by Max Meyerhof: "Les Versions syriaques et arabes des écrits galéniques," in *Byzantion*, 3 (1926—1927), pp. 33—51; and *Isis*, 8 (1926), 685—7.

Ganaltay, Semsettin (editor)

Büyük Yürk Filozof ve Tıb Üstadi İbnî Sînâ, Sasiyeti ve eserleri Hakkında Tetkikler. Istanbul, Halit Kitap Evi, 1937

A compilation of detailed but not often scholarly articles by several authors on the various aspects of the life and contributions of Ibn Sīnā, especially to philosophy, medicine, and metaphysics.

García del Real, Eduardo

Historia de la medicina en España. Madrid, 1921

Includes the contribution of the Islamic period in Spain.

Gauthier, Leon

Antécédents gréco-arabes de la psychophysique. Beirut, 1939

This is an elaborate study of a treatise by al-Kindī (d. ca. 873) on the knowledge of the faculties of compounded drugs, *Fī Maʿrifat Qimwā al-Adwiyah al-Murakkabah*. In discussing posology (fixing dosages of ingredients in simple and compounded remedies), al-Kindī's interpretation was an improvement over that of Aristotle. Gauthier therefore tries to prove that al-Kindī was a worthy predecessor of E. H. Weber and Th. G. Fechner, the 19th-century pioneers of modern psychophysics. This book includes a detailed introduction and a carefully made French translation of the edited Arabic text.

Geber; see Ḥayyān, Abū Mūsā Jābir ibn

Georgiadès, Nicolas

La Pharmacie en Egypte. Cairo, Diemer (editor), 1906

This illustrated book was originally written as a thesis presented to the faculty of medicine at Bordeaux, France. It has a chapter on pharmacy in ancient, Ptolemaic, and medieval Egypt under Islam. The major part of the book, however, discusses pharmaceutical developments from 1825 to 1904.

Germain, Alex

La Médecine arabe et la médecine grecque a Montpellier. Montpellier, 1879

Gessman, Gustav Wilhelm

Die Geheimsymbole der Alchemie, Arzneikunde und Astrologie des Mittelalters; eine Zusammenstellung der von den Mystikern und

Alchymisten gebrauchten geheimen Zeichenschrift, nebst einem kurzgefaßten, geheimwissenschaftlichen Lexikon. 2. Durchgesehene und ergänzte Aufl. Ulm-Donau, Arkana, 1959.

An illustrated short work first published under the title *Die Geheimsymbole der Chemie und Medicin des Mittelalters*.

Ghāfiqī, Abū Jaʿfar Aḥmad ibn Muḥammad al-

Al-Jāmiʿ fī al-Ṭibb fī al-Adwiyah al-Mufradah

Max Meyerhof and G. P. Sobhy edited an abridged text of this important work with translation, annotations, and a useful introduction, under the title *The Abridged Version of "The Book of Simple Drugs of Aḥmad ibn Muḥammad al-Ghāfiqī by Gregorius Abu'l-Faraj, Barhebraeus* (4 parts, Cairo, Iʿtimād Press, 1932—1940). This publication was discontinued when Meyerhof and Sobhy discovered that several unabridged manuscripts of al-Ghāfiqī's (d. 1164/5) *Jāmiʿ* are extant. See also Moritz Steinschneider, "Ghafiki's Verzeichnis einfacher Heilmittel," *Virchow's Archiv für Pathologische, Anatomie und Physiologie und für Klinische Medizin*, 77 (Berlin, 1897), pp. 507—548, and vol. 85, pp. 32—171.

Ghāfiqī, Muḥammad ibn Qassūm ibn Aslam al-

Al-Murshid fī al-Kuḥl

This 12th century work on ophthalmology was edited from Arabic manuscript No. 835, preserved at the Escorial library, with a translation and annotations by Max Meyerhof, in collaboration with Mahmud Sidqi, under the title *Le Guide de l'ocultistique* (Masnou, Barcelona, Laboratorios del Norte de España, 1933). It contains a useful glossary of technical terms used in the Arabic text.

Ghassānī, Yūsuf ibn ʿUmar ibn Rasūl al-

Al-Muʿtamad fī al-Adwiyah al-Mufradah

Al-Ghassānī (d. ca. 1297) was a ruler of Yemen (al-Yaman, a country which occupies the southwestern portion of Arabia). He surpassed all other practitioners in his domain in his knowledge of drugs and medical treatment. In the introduction to

this textbook on materia medica, however, al-Ghassānī mentioned that he had relied heavily on such earlier works on the subject as *al-Taṣrīf* of Abū al-Qāsim al-Zahrāwī (Abulcasis), the medical synopsis in the form of charts (Taqwīm) of Ibn Jazlah (d. 1100), and the comprehensive survey of medical botany of Ibn al-Bayṭār (d. 1248).

Ghunaymah, Muḥammad ‘Abd al-Raḥmān Abū

Tārīkh al-Jāmi‘āt al-Islāmiyyah al-Kubrā. Tetuan, Ma‘hid Mawlāy al-Hasan, 1953

A useful work on the history of famous schools and academies which flourished in the Islamic world. It is particularly interesting for students of the history of medical education during the Middle Ages.

Goichon, Amelie M.

La Philosophie d’Avicenne et son influence en Europe médiévale. Paris, 1944, 2nd ed., Paris, Adrien-Maisonneuve, 1951

Delivered in 1940 as Forlong Lectures at the school of African and Oriental studies, University of London. It contains bibliographical footnotes, but of little interest to medical history.

Gordon, Benjamin Lee

Medieval and Renaissance Medicine. New York, Philosophical Library, 1959

This detailed study provides good coverage of the Islamic period. However, the information and interpretations of data are not always accurate.

Görlitz, Walter

Wächter der Gläubigen, der arabische Lebenskreis und seine Ärzte. Hamburg, Sieben Stabe Verlag, 1936

Relatively unimportant account of eminent Muslim physicians with short bibliographies. Includes 7 plates. This book, however makes a very interesting reading if one is careful not to take the included data seriously as historical facts.

Gregorius Abū al-Faraj al-‘Ibrī, see Bar Hebraeus.

Guerkan, Kazim Ismail

Ebn' Alī Ibn-i Sīnā. Istanbul, Sermet Matbaasi, 1954

On the life and works of Ibn Sīnā (980—1037); includes a recent portrait of the celebrated physician-philosopher.

Guiges, Pierre

Essai de restitution et d'identification les noms dans Sérapion "Liber de simplice medicina." Paris, 1905

A reliable and useful critical study.

Gurlt, Ernst Julius

Geschichte der Chirurgie und ihrer Ausübung; Volkschirurgie-Alterthum-Mittelalter-Renaissance. 3 vols., Berlin, Hirschwald, 1898

This reliable illustrated work covers the history of surgery from ancient times to the end of the 16th century. In scope, it is probably the most comprehensive work of its kind ever written before the end of the 19th century. It gives an illuminating coverage of surgical development in medieval Islam.

Haeser, Heinrich

Lehrbuch der Geschichte der Medicin und der epidemischen Krankheiten. 3 vols., Jena, Dufft, 1875—1882

One of the best 19th-century publications on the history of medicine and epidemics from remote antiquity up to 1881. The first volume (pp. 547—603) discusses medical development during the Islamic period, and the third is on the general history of epidemics.

Ḥājī Khalfah, Muṣṭafā ibn 'Abd Allāh

Kashf al-Zunūn 'an Asāmī al-Kutub wāl-Funūn

This encyclopedic bibliography of Ḥājī Khalfah (d. 1658) is indispensable for any research on cultural contributions in Islam. It lists extant Arabic, Persian, and Turkish works with an attempt at classification according to subject matter, embracing the recognized fields of human knowledge. It was edited in

2 vols., Cairo, Būlāq, 1274 A. H. (1857/8). A more useful edition with Latin translation and notes was prepared by Gustav Flügel under the title *Lexicon Bibliographicum et Encyclopaedicum a Mustfa ben Abdallah Katib Jelebi dicto et nomine Haji Khalfa celebrato compositum* (7 vols., Leipzig-London, 1835—1858), published for the Oriental Translations Funds of Great Britain and Ireland. This work was also published in Istanbul, Turkey, 1941—1942. I consulted more often, the Arabic edition, 2 vols., Cairo, 1310—1311 A. H. (1892/3).

Hameed, Abdul (editor)

Theories and Philosophies of Medicine. Delhi, India, Institute of History of Medicine and Medical Research, 1962

In this welcomed volume the three medical schools of thought, the Greco-Arabic, the Ayurveda or the science and art of medicine in India, and the traditional Chinese medicine are presented. It consists of articles from several contributors arranged by Ausaf Ali with an introduction which emphasizes the fact that the health field “could never become a pure science because it concerns humans,” but that it is both a science and an art at the same time. It devotes several chapters to the study and evaluation of Arabic medicine, its basic features, its principles for drug research and the humoral theory in medicine.

Hammer-Purgstall, J. von

Literaturgeschichte der Araber. 7 vols., Vienna, Druck, 1850—1856

Deals with Arabic literature from its early beginnings to the fall of Baghdād in 1258. Since the data included are not always accurate, mention of this comprehensive work has been rather neglected in many bibliographical citations. Nevertheless, it is somewhat more useful than many other better known middle-19th-century studies of the period. It includes 9915 entries and excerpts from manuscripts but lacks indices.

Haneberg, B.

Zur Erkenntnislehre von Ibn Sina und Albertus Magnus. Munich, München Akademie der Wissenschaften, 1886

Haneberg, H.

Abhandlungen über das Schul- und Lehrwesen der Muhamedaner im Mittelalter. Munich, 1850

Interesting study of schools and education in medieval Islam.

Harāwī, Abū Manṣūr Muwaffaq ibn ‘Alī al-

Al-Abniyah ‘an Ḥaqā’iq al-Adwiyah

A useful reference for identification of simple drugs and their medicinal uses, completed about 970 with synonyms in Persian, Syriac, Sanskrit, and Greek, edited by Franciscus R. Seligman under the title *Liber Fundamentalium Pharmacologiae Medici Abu Mansur Muwaffak* (Vienna, 1830—1833, and 1859). Thereafter, it was translated by Abdul Chalig Achundow and published as Volume 3 of the *Historische Studien aus dem Pharmacologischen Institut der Kaiserlichen Universität Dorpat*, in the German version entitled *Die pharmakologischen Grundsätze des Abu M. M. bin A. Harawi* (5 vols., Dorpat-Halle, 1889—1896).

Haris, Joseph

La Part de la médecine arabe dans l’évolution de la médecine française. Paris, 1922

A good thesis in which the author describes the period of transmission of Arabic medicine into the West and its impact on medical development, particularly in France.

Haskins, Charles Homer

Studies in the History of Mediaeval Science. Cambridge, Mass., Harvard Univ. Press, 1924; and 2nd ed. Cambridge, Mass., 1927

A reliable work, of interest to students of medieval Islam. It devotes a good portion of its contents to Arabic science in Spain and explains the role of 12th- and 13th-century translators there. It also mentions the part played by translators in Syria during the Crusades, and Arabic cultural influence in the Kingdom of the two Sicilies and its impact on Italy and other parts of Western Europe.

Ḥayyān, Abū Mūsā Jābir ibn

Hatk al-Astār

A short treatise on silvering of copper and iron, edited with a rendering into English by Robert R. Steele for the Geber Society (London, Luzac, 1892), under the title *The Discovery of Secrets*.

Al-Sumūm wa-Daf‘ Maḍārribā

This work, ascribed to Jābir, discussed in six sections a variety of poisons and toxic drugs and their antidotes. First to bring to attention this unique manuscript, preserved in the Egyptian National library (Taymūr, Ṭibb, No. 393) in Cairo, was Ya‘ qūb Ṣarrūf, who studied the contents thoroughly and published his research in several articles in *Majallat al-Muqtataf* of Cairo (vols. 58 and 59, 1921). Recently, the Arabic text of *al-Sumūm* was reproduced in facsimile and published with a useful introduction, annotations, and bibliography by Alfred Siggel under the title *Das Buch der Gifte des Ġābir ibn Ḥayyān* (Wiesbaden, 1958).

The Arabic Works of Jābir ibn Ḥayyān

Only volume 1, part 1, containing eleven essays of the Jābirian corpus, has been edited with a valuable introduction and critical notes by Eric John Holmyard (Paris, Geuthner, 1928). The Arabic title reads *Muṣannafāt fī ‘Ilm al-Kīmīyā lil-Ḥakīm Jābir ibn Ḥayyān al-Šūfī*.

The Works of Geber

Contains several treatises attributed to Jabir ibn Hayyan, “Faithfully Englished by R[ichard] R[ussell], a lover of Chymistry,” printed by T. James, London, 1678.

A new edition with extra figures taken from the Berne Latin edition of 1545 was published with valuable introduction by Eric J. Holmyard under the same title (London, Dent, and New York, Dutton, 1928).

Hernandez Morejon, Don Antonio

Historia Bibliográfica de la Medicina Española obra Pastuma. 7 vols., Madrid, J. E. Hijos, 1842—1852

Volume one (1842), pp. 60—236, discusses the contributions of Muslim and Jewish physicians to the development of medicine in Spain during the Middle Ages.

Hibat Allāh, Abū al-Ḥasan Saʿīd ibn

Khalq al-Insān

Hibat Allāh (1044—1102) was both a physician and a philosopher who served at the famous Aḡudī hospital in Baghdād. In 50 sections, this treatise (maqālah) on the creation of man deals with reproduction, parturition, human growth and hygiene and mental faculties. A synopsis was published under the title *Muntakhabāt Kitāb Khalq al-Insān* (Beirut, Lebanon, 1912).

Hilton-Simpson, M. William

Arab Medicine and Surgery. London-Oxford, University Press, 1922

On the healing art as practiced by nomads in Algeria in the early 20th century. This study by a non-professional shows how much the Islamic legacy of the Middle Ages persisted in the folk medicine of the area.

Hinz, Walther

Islamische Maße und Gewichte, Umgerechnet ins metrische System. Leiden, Brill, 1955

Probably the best work thus far on the complicated subject of measures and weights in medieval Islam in their relation to the equivalent weights in the metric system.

Hirsch, August

Biographisches Lexikon der Hervorragenden Ärzte alter Zeiten und Völker. 6 vols., Vienna and Leipzig, 1884—1888; reprinted, 1929—1935

A monumental biographical work which includes eminent physicians in the Islamic period.

Hirschberg, Julius

Geschichte der Augenheilkunde bei den Arabern, Handbuch der gesamten Augenheilkunde. Leipzig and Berlin, Engelmann, 1905

This scholarly evaluation of ophthalmology in Islam, written in cooperation with Julius Lippert and Eugen Mittwoch, was the best published on the subject before the end of the first quarter of this century.

Die arabischen Lehrbücher der Augenheilkunde, ein Capitel zur arabischen Litteraturgeschichte. Berlin, 1905, published in the *Abhandlungen Preuss. Akademie d. Wiss.*

Contains useful bibliographies and reliable information.

Holmyard, Eric John

Alchemy. Harmondsworth, Penguin, 1951

Presents the fascinating story of the attempts by alchemists, mystics, and charlatans to find the philosopher's stone for the transmutation of base metals into silver and gold. A chapter on Islamic alchemy is included. I consulted the Pelican edition, Edinburgh, 1957.

Avicennae, de congelatione et conglutinatione lapidum. Paris, Geuthner, 1927; see Sīnā, Abū 'Alī al-Ḥusayn ibn

Makers of Chemistry. Oxford, Clarendon, 1931

The Great Chemists. 3rd ed., London, Methuen, 1929

The last two illustrated works by Holmyard include discussion of alchemy in Islam. See also Holmyard's article, "Maslama al-Majrīṭī and the Rutbatu'l Hakīm," *Isis*, 6 (1924), pp. 293—305.

Hoefer, Ferdinand

Histoire de la chimie. 2 vols., Paris, 1866—1869

Volume I contains a section pertaining to early chemistry in Islam.

Hooper, David

Useful Plants and Drugs of Iran and Iraq, with Notes by Henry Field. Vol. 9, No. 3 of the botanical series, Field Museum of Natural History of Chicago, Chicago, Ill., 1937

Useful in identifying and describing medicinal herbs found and used in Iran and Iraq and neighboring countries. Such

utilization of drugs conveys a picture of similar practices in medieval Islam that persisted up to the 20th century.

Hopkins, Arthur John

Alchemy, Child of Greek Philosophy. New York, Columbia Univ. Press, 1934

Chapter VIII (pp. 134—186), dealing with alchemy in the Islamic period, is based entirely on secondary sources.

Hubāl, Abū al-Ḥasan ‘Alī ibn Aḥmad ibn

Al-Mukhtārāt fī al-Ṭibb

Ibn Hubāl, born in Baghdād in 1117 and hence known as al-Baghdādī, studied at the famous Nizāmiyyah college (founded in 1066/7), the first great school of its kind in Islam. He practiced medicine at al-Mawṣil in northern Iraq, where he died in 1213/4. His medical compendium *Mukhtārāt* is the best known of his works. In its introductory chapters Ibn Hubāl speaks of the qualifications of candidates for studying the healing art and lists requirements for seeking such a highly responsible calling. This work has been published by the Osmania University Press (4 vols., Hyderabad, India, 1362—64, A. H. [1943—44]). The section on the treatment of stones in the kidney and bladder has been translated and commented upon by P. de Koning in a work that includes similar sections from al-Majūsī's *Malakī* and Ibn Sīnā's *Qānūn*, under the title *Traité sur le calcul dans les reins et dans la vessie* (Leiden, Brill, 1896).

Ḥunayn ibn Ishāq al-‘Ibādī (Joannitius); see Ishāq, Abū Zayd Ḥunayn ibn.

Ḥunayn, Ishāq ibn

Tārīkh al-Aṭibbā

Ishāq (d. 911/2) was a true follower of his father, Ḥunayn, in the accuracy and scholarship of his rendering of Greek writings into Arabic, especially of the Aristotelian corpus. In this *History of the Physicians*, dedicated to wazīr Abū al-Ḥusayn ibn al-Ḥasan in 903, Ishāq revised, corrected, and added information to an earlier chronicle written by Yaḥyā al-

Naḥawī (Yūḥannā the Grammarian) of Alexandria. The *Tārīkh* begins with the Greek physicians to Galen and then includes doctors of the Alexandrian school to Paulus Aegineta and Yūḥannā the Grammarian, both of whom flourished during the first half of the 7th century. This work was edited and translated by Franz Rosenthal, in *Oriens*, 7 (1954), pp.55—80.

‘Ibadī, Ḥunayn ibn Ishāq al-, see Ishāq, Ḥunayn ibn

Ikhwān al-Ṣafā wa-Khullān al-Wafā

Rasā’il Ikhwān al-Ṣafā

The writers of these some 52 epistles are members of Shī‘ites (a secret organization interpreted as the Brethren of Purity). This brotherhood was organized in al-Baṣrah, a city in the south of Iraq on the Persian Gulf, in the 10th century. The anonymous writers of these letters, who propagated the purification of the soul and mind through knowledge, tried to compromise Islamic culture with Hellenistic concepts which penetrated the religious, philosophical, and scientific thought in medieval Islam (for detail see Yūḥannā Fākhūrī, *Ikhwān al Ṣafā*, Ḥurayṣah, Lebanon, Būliṣiyyah Press, 1947). Their letters were encyclopedic in scope and embraced much of the then known fields of knowledge: Mathematics, music, religion, metaphysics, astronomy and astrology, and the natural sciences including alchemy, mineralogy and medical ethics. This whole encyclopedia was edited by Aḥmad ibn ‘Abd Allāh (4 vols., Bombay, India, 1305—1306 A. H. [1887—1888]). A better edition was published by Khayr Allāh al-Zarkalī with a detailed introduction by Ṭaha Ḥusayn (4 parts in 2 vols., Cairo, ‘Arabīyyah Press, 1928). Most of the text was translated into German by Fr. Dieterici under the title *Die Philosophie der Araber im X. Jahrhundert n. Chr. aus den Schriften der lauterer Brüder* (Leipzig and Berlin, Mittler, 1858—1872), followed by two other volumes called *Makrokosmos*, 1876, and *Mikrokosmos*, 1879, presenting a summary of the contents of the epistles.

‘Irāqī, Abū al-Qāsim Muḥammad ibn Aḥmad al-

Al-‘Ilm al-Muktaṣab fī Zīrā‘at al-Dḥabab

Al-‘Irāqī, who flourished in the late 13th century as an alchemist, was a firm believer in experimental work. In this

essay on gained knowledge concerning the cultivation of gold, he presents a clear account of the theory of transmutation of lesser metals into gold as then known in Islam. The essay was edited from three Arabic manuscripts and translated by E. J. Holmyard (Paris, Geuthner, 1923). For a better evaluation of this alchemist and his alchemical writings, see Holmyards' article, "Abu'l-Qāsim al-'Irāqī," *Isis*, 8 (1926), pp. 403—426.

'Isā, 'Alī ibn

Al-Tadhkirah

Early Arabic writings on ophthalmology such as those of Yūḥannā ibn Māsawayh (777—857) and his illustrious student Ḥunayn (d. 874) were based on Greek sources. The *Tadhkirah*, written about 1000 A. D., contains original information based on personal observation and experience. It carefully describes, in three sections, the anatomy and physiology of the eye, its diseases, treatment, and hygiene. As a manual for oculists it stands as one of the best ophthalmological works in the Middle Ages and it influenced later practitioners and writers. It was translated and annotated by Julius Hirschberg in cooperation with J. Lippert under the title *Erinnerungsbuch für Augenärzte* (Leipzig, Veit, 1904). It was also translated into English with introduction, notes, and a useful vocabulary by Casey A. Wood under the title *Memorandum Book of a Tenth-Century Oculist, for the Use of Modern Ophthalmologists* (Chicago, 1936).

Ishāq, Abu Zayd Ḥunayn ibn

Al-'Ashr Maqālāt fī al-'Ayn

The Nestorian physician, Ḥunayn ibn Ishāq al-'Ibādī, known to the Latin West as Joannitius, was born in Ḥirā, Iraq (809) as the son of a druggist. He studied in Baghdād and al-Baṣrah, and later became the foremost translator of medical works into Arabic in Islam. He died in Baghdād in or about 874. In addition to his scholarship and competence, he was a man of integrity and high moral standing. For further detail on Hunayn's life and accomplishment see a previous entry of Gotthelf Bergsträsser. See also Giuseppe Gabrieli, "Ḥunayn ibn Ishāq," *Isis*, 6 (1924),

pp. 282—292; and Max Meyerhof, “New Light on Ḥunain ibn Ishāq and his Period,” *Isis*, 8 (1926), pp. 685—724.

Of the many original works attributed to Ḥunayn, this compilation of ten treatises on the eye deserves a credit. It is probably the earliest existing systematic textbook devoted entirely to ophthalmology. It discusses the anatomy, physiology, and pathology of the eye and includes drug formulas used and methods recommended for the treatment of eye diseases. It was edited and translated with a remarkable and informative introduction, commentary, and glossary by Max Meyerhof under the English title *The Book of the Ten Treatises on the Eye, Ascribed to Ḥunain ibn Ishāq, 809—877* (Cairo, 1928).

Al-Masā'il fī al-'Ayn

Composed of three treatises on ophthalmology in the form of questions and answers, 209 in all. This work has been edited with French translation and annotation by Paul Sbath and Max Meyerhof under the title *Le Livre des questions sur l'oeil de Ḥunain ibn Ishāq* (Cairo, 1939), memoir presented to the *Institut d'Égypte*, and published by the *Institut Français d'Archéologie Orientale* in *Bull. Inst. Égypt.*, vol. XX (1938/1939).

Risālat Ḥunayn ibn Ishāq ilā 'Alī ibn Yahyā fī Dhikr mā Turjim min Kutub Jālinūs bi-'Ilmih wa-ma lam Yutarjam

This epistle of Ḥunayn (written about 856) on the translated works of Galen, is a valuable document of interest in the history of medicine. It was edited and translated with indices and a useful commentary on the style and scholarship of Ḥunayn's translations by Gotthelf Bergsträsser, under the title *Ḥunain ibn Ishāq über die syrischen und arabischen Galen Übersetzungen* (Leipzig, 1925). This edition is based on Arabic manuscript No. 3631 found at Aya Sophia library in Istanbul, Turkey.

Issa, Ahmad

Alāt al-Ṭibb Wāl-Jirāḥah wāl-Kiḥālāh 'ind al-'Arab. Cairo, 1925

This essay consists of six plates and 24 pages illustrating instruments used by physicians, surgeons, and oculists in medieval Islam. The author relied heavily on the works of Hirschberg and Sudhoff, as well as on the illustrations of the

thirtieth treatise of al-Zahrāwī's *al-Taṣrīf*, as found modified in Western publications. It is possible that not all the illustrated tools in the essay are necessarily medical instruments.

Histoire des Bimaristans (hôpitaux) à l'époque islamique. Cairo, 1928

This elaborate survey of hospitals throughout medieval Islam has been revised, enlarged, and published by the author in Arabic under the title *Tārīkh al-Bimāristānāt fī al-Islām*, Damascus, Syria, al-Tamaddun al-Islāmī, 1939. It includes several illustrations, documents, lists, and biographies of historical interest.

Muʿjam al-Aʿiyyā. 1st ed., Cairo, 1942, and 2nd ed., Cairo, 1952

A useful bio-bibliography of Arabic-speaking physicians from about the middle of the 13th century to the first quarter of the 20th, arranged alphabetically. It is a continuation of *ʿUyūn al-Anbāʾ fī Ṭabaqāt al-Aʿiyyā*, by Ibn Abī Uṣaybiʿah (d. 1270).

Tārīkh al-Nabāt ʿind al-ʿArab. Cairo, Al-Iʿtimād Press, 1944

A brief, descriptive bio-bibliography in four sections on the development of materia medica and the knowledge of medicinal herbs and botany in medieval Islam. Not well documented.

Jābir ibn Ḥayyān al-Ṭūsī al-Azdī al-Šūfī; see Ḥayyān, Jābir ibn

Jāḥiẓ, Abū ʿUthmān ʿAmrū ibn Baḥr al-

Al-Ḥayawān

Al-Jāḥiẓ of al-Baṣrah (d. 869) was a prolific author who became well recognized as a man of letters and whose writings include essays on zoology, anthropology, sociology, and philology. His *al-Ḥayawān* is one of the earliest comprehensive zoological works written in Islam, and possibly the first on animal lore and observation which draws heavily from older Arabic narrations and Aristotle's *Historia animalium*. It speaks of goats, wild beasts, dogs, donkeys, pigs, snakes, scorpions, mice, insects, flies, doves, crows, bees, etc. Throughout the text and in the several quoted verses, however, al-Jāḥiẓ presents philosophical interpretations of society and man's behavior in

his environment. The seven parts of this work were published under the auspices of Muḥammad al-Sāsī of Tunisia (Cairo, 1905–1907, and reprinted in 1938). Another edition in 2 volumes was printed in Beirut, Dār Iḥyāʾ al-ʿUlūm, 1955–1956. A third was edited by ʿAbd al-Salām M. Hārūn with detailed commentary and bibliographical notes (7 vols., Cairo, Halabī Press, 1938–1945). For further detail on this work, see L. Kopf, “The Book of Animals of al Jāhiz,” *Actes du VII^e Congrès International d’Histoire des Sciences*, (Jerusalem, 1953), pp. 395–401.

Al-Bighāl

It was edited with annotation by C. Pellat, under the title *Livre des mulets* (Paris, 1956).

Jawbarī, ʿAbd al-Raḥmān ibn ʿUmar al-

Al-Mukhtār fī Kashf al-Asrār wa-Hatāʾ al-Astār

This is a critical description in 30 chapters, completed about 1223, of the common practices of astrologists, geomancers, soothsayers, and sorcerers and of their use of magic and incantation to deceive the public. It was edited in Damascus, 1885; in Istanbul, 1899; and in Cairo, 1908. The *Kashf* gives description to about 987 simple drugs and their therapeutic uses in the various diseases.

Jazāʾirī, ʿAbd al-Razzāq ibn Muḥammad al-

Kashf al-Rumūz

This 18th-century compendium on medicinal herbs derives much of its material from earlier works on medical botany in medieval Islam. It was translated with a useful commentary by Lucien Leclerc under the title *Traité de matière médicale arabe d’Abd er-Rezzaq l’Algérien... Kachefer-Roumouz* (Paris, Bailliére, 1874). For the treatment of diseases it gives description to about 987 simple drugs.

Jazlah, Yaḥyā ibn ʿIsā ibn ʿAlī ibn

Taqwīm al-Abdān fī Tadbīr al-Insān

Ibn Jazlah (d. 1100/1101) of Baghdād was a Christian physician who embraced Islam in 1074. He dedicated the *Taqwīm*,

which consists of 44 charts on regulating diet for better health, with instructions for the treatment of the listed diseases, to Caliph al-Muqtadī (reigned 1075—1094). This work followed a pattern first modeled by Ibn Buṭlān of Baghdād almost four decades earlier. Its Latin version, under the title *Dispositio Corporum de Constitutione hominis*, was printed at Strasbourg in 1532. It was edited in 2 vols., Damascus, Rawḍat Dimashq, 1915.

Jazzār, Abū Ja‘far Aḥmad ibn Ibrāhīm ibn al-

Al-I‘timād fī al-Adwiyah al-Mufradah

Ibn al-Jazzār (d. 1009) was the celebrated physician of al-Qayrawān of his day. In his medical practice he emphasized the importance of urinalysis. Medications for his patients were prepared and dispensed by an apprentice under Jazzār’s supervision and in accordance with written prescriptions. Ibn al-Jazzār influenced his contemporaries, such as Abulcasis al-Zahrāwī in the Andalusian capital, and later medical botanists and practitioners such as Ibn Wāfid, al-Ghāfiqī, and Ibn al-Bayṭār. The work on materia medica was translated into Latin by Stephanus de Sargossa and a copy of this version exists at Munich (Cod. Lat. 253). This manuscript was studied and translated with an introduction which includes a biography of Jazzār and a discussion of the impact of Arabic medical therapy on the West during the Middle Ages, by Lothar Volger, under the title *Der Liber Fiduciae de Simplicibus medicinis des Ibn-al-Jazzar* (Würzburg, Triptseh, 1941).

Zād al-Musāfir

This is the most popular and probably the best of Ibn al-Jazzār’s medical writings. It includes chapters on fevers, plagues, smallpox and measles, coryza, general medical therapy, diet, and hygiene. The discourse was studied by Gustav Dugat in a book entitled *Études sur le traité de médecine d’Abou Djafar Ahmad* (Paris, Imperiale, 1853), reprinted from *Journal Asiatique*, 4 (1853).

Jildāki, ‘Izz al-Dīn ‘Alī ibn Aydamir al-

Al-Miṣbāḥ fī ‘Ilm al-Miftāḥ

Al-Jildāki (flourished second quarter 14th century) spent about 17 years of his life visiting several countries in search

of information to further his knowledge in the art of alchemy. Holmyard in his book *The Great Chemists* (3rd ed., London, 1929), p. 42, mentions that Jildākī realized the importance of alchemical experimental work and that “substances react only in a definite proportion by weight,” a fact which reflects modern concepts. This work, which was published in Cairo, 1302 A. H. [1884], represents a summary of Jildākī’s five earlier alchemical works: *Nibāyat al-Ṭalab*, *al-Taqrīb*, *Ghāyat al-Surūr*, *al-Burbān*, and *Kanẓ al-Ikhtisās*. See also Holmyard’s article, “Aidamir al-Jildakī”, *Iraq*, 4 (1937), pp. 47—53.

Joannitius, see Ishāq, Ḥunayn ibn

Joret, Charles

Les Plantes dans l’antiquité et au moyen âge. 2 vols., Paris, 1897—1904

This valuable work gives comprehensive coverage to the floral, agricultural, and horticultural developments in the ancient Middle East: Egypt, Mesopotamia, Irān, India, Greece, and Rome. It discusses plants and medicines as well as their role in influencing the art, religion, and economy of these countries. It was not completed.

Juljul, Sulaymān ibn Ḥassān ibn

Tabaqāt al-Aṭibbā wāl-Ḥukamā

This and *al-Fihrist* of Ibn al-Nadīm, both completed about 987, are the earliest biographies of physicians and learned men in Islam. As precise sources of the period they are indispensable for any research on medical development up to the authors’ time. Ibn Juljul relied on Arabic as well as, it seems, on Latin sources for his information. Living in Cordova, he gave special attention to including biographies of ninth and tenth century physicians and sages of Moorish Spain. It was edited with a useful introduction by Fū’ād Sayyid (Cairo, 1955), and published by the Institut Français d’Archéologie Orientale.

Khairallah, Amin A.

Outline of Arabic Contributions to Medicine and Allied Sciences. Beirut, American Univ. Press, 1946

A useful survey which could be better organized and documented. The author consulted Arabic sources and translated certain passages from manuscripts or edited works of interest.

Khallikān, Aḥmad ibn Muḥammad ibn Abi Bakr ibn

Wafayāt al-Aʿyān wa-Anbāʾ Abnāʾ al-Zamān.

Ibn Khallikān was born in Arbīl, northern Iraq, in 1211 to 1212. He studied in al-Mawṣil and Aleppo and held the post of judge in Egypt and Damascus where he died in 1282. His *wafayāt* is an invaluable record for the study of Islamic culture and contains 864 entries (biographies). In the introduction the author mentions how, beginning in his youth, he collected much material on Muslim learned men, especially those of the 12th and 13th centuries. As a result of accumulated comprehensive data he felt the need for organizing the compiled biographies in alphabetical order and making it available to others. Because much has been written on caliphs, kings, rulers, and governors, Ibn Khallikan fortunately decided to leave such chronicles out of his work. Instead, he devoted the space to biographies of poets, musicians, theologians, philosophers, judges, physicians, and other men of letters and sciences. It was edited by F. Wüstenfeld in 13 vols., Gotha, 1835—1850; and 2 vols., Cairo, Būlāq, 1881—1882. It was also translated with an introduction by William MacGuckin de Slane under the title *Ibn Khallikan's Biographical Dictionary* and published for the Oriental Translations Fund of Great Britain and Ireland (4 vols., Paris, 1843—1871). Recently the *Wafayāt* was edited with annotations and indices by Muḥammad Muḥyī al-Dīn ʿAbd Al-Ḥamīd (6 vols., Cairo, al-Nahḍah, 1948). The supplement, *Fawāt al-Wafayāt* by Muḥammad ibn Shākir ibn Aḥmad al-Kutubī (d. 1363) was likewise edited by ʿAbd al-Hamid in 2 volumes (Cairo, al-Saʿādah, 1951).

Khan, M. Abdur-Rahman

A Brief Survey of Muslim Contribution to Science and Culture.
Lahor, 1946

This is a useful, documented survey which has no index and shows a tendency toward over-stated, half-proved asser-

tions. It discusses the development of the various fields of knowledge of the time, such as mathematics, biology, chemistry, and medicine, and their impact on Western civilization.

Khwārizmī, Abū ‘Abd Allāh Muḥammad ibn Aḥmad al-Mafātīḥ al-‘Ulūm.

This work, which is invaluable to both the philologist and the historian of science, is a classified vocabulary of technical terms as well as a “key” to the known sciences of the time (completed 997). The contents are divided into two categories: 1) the indigenous sciences in six sections, including theology, Arabic syntax and grammar, poetry, etc., and 2) the exotic, in nine sections, such as philosophy, mathematics, music, astronomy, alchemy, and medicine. It was edited by G. van Vloten (Leiden, Brill, 1895) and also published in Cairo (Muniriyyah, 1342 A. H. [1923]). See Ernst Seidel, “Die Medizin im Kitāb Mafātīḥ al-‘Ulūm,” *Sitzungsberichte der Physik-Medizin. Sozietät Erlangen*, 47 (1915), 1—79. I found useful, the above mentioned edition, commentary, and indices by Vloten under the title, *Abu Abdallah M. ibn Ab. i. Jusuf al-Katib al-Khowarismi; L. Mafatih al-Olum, Explicans Vocabular Technica Scientiarum tam arabum quan peregrinorum*. However, I question the validity of some conclusions by C. F. Bosworth in his article, “A Pioneer Arabic Encyclopedia of the Sciences: al-Khwārizmī’s Key of the Sciences,” *Isis*, 54 (1963), 97—111.

Kindī, Abū Yūsuf Ya ‘qūb ibn Ishāq al-Kīmīyā al-‘Itr wāl-Taṣ‘idāt.

Al-Kindī (d. c. 873), who comes from a royal Arab ancestry (Banū Kindah), was born in al-Kūfah, southern Iraq, and studied in al-Baṣrah and Baghdād. He deserves the title of “philosopher of the Arabs” since he was the foremost of the exponents and true followers of the Aristotelian tradition in his time, and that without sacrificing his own originality. He was also an astronomer, mathematician, musical theorist, natural scientist, and physician. This work on the chemistry of aromatics and distillates is one of the earliest of its kind in Islam. It was edited from the manuscript at Istanbul and

translated with useful introduction and annotations by Karl Garbers, under the German title *Buch über die Chemie des Parfums und die Destillationen ... von Ya'qūb b. Ishāq al Kindī; ein Beitrag zur Geschichte der arabischen Parfumchemie und Drogenkunde aus dem 9. Jahrhundert* (Leipzig, Brockhaus, 1948). I am not very sure of the authenticity of this treatise.

Klein, Carol

The Credo of Maimonides; A Synthesis. New York, Philosophical Library, 1958

Includes a useful bibliography. For more on Maimonides, see Maymūn, Mūsā ben (Maimon).

Koning, P. de

Traité sur la calcul dans les reins et dans la vessie. Leiden, Brill, 1896

This important study deals with the generation, diagnosis, and medical treatment by diet and drugs of calculi in the kidney and bladder. It is based on a translation with introduction and annotations of a passage in the book *al-Fākihīr*, by Muḥammad ibn Zakariyyā al-Rāzī (d. ca. 932), from manuscript No. 585 at the library of the University of Leiden. In addition Koning translated relevant texts from Majūsī's *al-Malakī*, al-Zahrāwī's surgical treatise, Ibn Sīnā's *al-Qānūn*, and Ibn Ḥubāl's *al-Mukhtār fī al-Ṭibb*.

Trois Traités d'anatomie arabes par Muḥammad ibn Zakariyyā al-Rāzī, 'Alī ibn al-'Abbās et 'Alī ibn Sīnā. Leiden, Brill, 1903

A very useful comparative study of extracted chapters from Rāzī's *al-Manṣūrī*, Majūsī's *al-Malakī*, and Ibn Sīnā's *al-Qanun*. Of interest in the history of anatomy. The commentary and annotations by de Koning deserves credit for its originality.

Kopp, Hermann

Die Alchemie in älterer und neuer Zeit. Ein Beitrag zur Culturgeschichte. 2 parts, Heidelberg, 1886. New ed., 1961

Beiträge zur Geschichte der Chemie. 3 parts, Braunschweig, 1869 to 1875

Both are probably the best works written on the subject up to their time. Kopp (1817—1892) was one of the first scholars in the West to question the authenticity of the Jabirian corpus. *Geschichte der Chemie*. 4 parts, Braunschweig, 1843—1847; reprinted in one volume, Leipzig, 1931

This remarkable study of the history of chemistry is considered classical.

Kraus, Paul

Épître de Bérûni contenant le répertoire des ouvrages de Muḥammad b. Z. al-Rāzī. Paris, 1936

This epistle brings bibliographical information on the writings of al-Rāzī as reported by Abū al-Rayḥān al-Bīrūnī (973—1048), only about a century after al-Rāzī's death (reported here in 925).

Jābir ibn Ḥayyān. Contribution à l'histoire des idées scientifiques dans l'Islam. 2 vols., Cairo, Institut d'Égypte, 1942—1943

Kraus refutes the traditional concept that the so-called Jabirian Corpus belongs to Jābir ibn Ḥayyān, who flourished in the last quarter of the 8th century. He attributes the writings rather to the secret Shī'ites brotherhood society of the tenth century known as Ikhwān al-Ṣafā (Brethren of Purity). Thus far, Kraus' work is the most complete coverage of the topic. It should be emphasized, however, that alchemical activities reached a high peak during the ninth century in Islam. There were then bitter opponents to the idea of transformation of base metals to gold and silver such as Ya'qūb ibn Ishāq al-Kindī (d. ca. 873), as well as strong supporters like Abū Bakr al-Rāzī (d. ca. 932), who firmly believed in such a possibility.

Laignel-Lavastine, Maxime (editor)

Histoire générale de la médecine, de la pharmacie, de l'art dentaire, et de l'art vétérinaire. 3 vols., Paris, Michel, 1936—1949

Volume 1 is devoted to the history of the healing arts in antiquity. Of real interest to Islamic medical sciences, however, is Volume 2, on the Middle Ages and Renaissance periods.

Volume 3 discusses art in the health field: iconography, miniatures, bas-reliefs, colored plates, and reproduction of manuscripts. Each phase or period covered in this comprehensive work was written by an expert in the field with Laignel-Lavastine as general editor.

Landau, Rom

Arab Contribution to Civilization. San Francisco, Calif, American Academy of Asian Studies, 1958

A valuable brief survey of Arab civilization, its birth and contribution to philosophy, medicine, chemistry, agriculture, and related fields of knowledge.

Lantzsck, Curt

Abu Jusuf Jakob Alkindi und seine Schrift de "Medicinarum compositarum gradibus" ein Beitrag zu dem Kapitel Mathematik und Medizin in der Vergangenheit. Leipzig, (ca. 1920).

This was presented as the author's inaugural dissertation to the faculty of medicine at the University of Leipzig. It discusses the posology of Ya'qūb al-Kindī (d. ca. 873) based on the Galenic elaborate interpretation of the theory of the four humors. It also gives a brief survey of the life and work of al-Kindi, the development of medicine, mathematics, and astrology in Islam, and its influence on the West.

Laurent-Täckholm, Viva; see Täckholm, Viva and Gunnar

Leclerc, Lucien

Histoire de la médecine arabe. 2 vols., Paris, 1876

A facsimile was published by Burt Franklin Research and Source Works Series, No. 18, New York, (1960). This monumental work is indispensable to any student of medical history in Islam. The author relied greatly on primary Arabic sources such as the works of 'Alī ibn Yūsuf al-Qiftī (d. 1248), Aḥmad Ibn Abī Uṣaybi'ah (d. 1270), and Ḥajjī Khalfah (d. 1658). Although written almost a century ago, Leclerc's work continues to be very useful and, in many respects, has not yet been

superceded in its general and comprehensive approach. The text includes an adequate table of contents, but it badly needs an index. Unfortunately, the published facsimile (New York, Franklin, 1960) has overlooked the addition of such an improvement.

Leicester, Henry M.

The Historical Background of Chemistry. New York, Wiley, 1956

A useful general survey of the history of chemistry. It devotes a section (Chapter 7) to Arabic alchemy.

Ley, Hermann

Avicenna. Berlin, Aufbau, 1953

Includes bibliographical notes.

Lippmann, Edmund O. von

Abhandlungen und Vorträge zur Geschichte der Naturwissenschaften. 2 vols., Leipzig, Velt, 1906—1913

Of special interest in this reliable work is the discussion regarding the concept of the four elements, the classical tradition of Aristotle, Dioscorides, Pliny; and the Muslim scholar al-Bīrūnī (d. 1048) and his contribution to natural sciences. It also includes the early methods for preparing alcohols, sal ammoniac, and other chemical substances.

Beiträge zur Geschichte der Naturwissenschaft und der Technik. Vol. 1, Berlin, Springer, 1923; vol. 2, Weinheim, Chemie, 1953

Entstehung und Ausbreitung der Alchemie; mit einem Anhang: zur älteren Geschichte der Metalle. Vol. 1, Berlin, Springer, 1919; vol. 2, Ein Lese- und Nachschlage-Buch, Berlin, 1931; vol. 3 edited by Richard von Lippmann, Weinheim, Chemie, 1954

In this useful comprehensive work, names, terms, and tools used in alchemy are arranged in alphabetical order and their origin identified.

Mahfouz, Naguib

The History of Medical Education in Egypt. Cairo, 1935; 2nd ed. rev. London, 1948

Medical education in Egypt from ancient times to the early 20th century is briefly covered. This work is more useful on the period that starts with the establishment of Qaṣr al-‘Aynī hospital in 1837 and the beginning of modern medical education in Egypt. See also his article, “Medical Education and Gynecology in the Arab Period,” *Bulletin of the Egyptian Association of Obstetrics and Gynecology*, March, 1953, pp. 15—34.

Maimonides, see Maymūn, Mosheh (Mūsā) ben

Major, Ralph H.

A History of Medicine. 2 vols., Springfield, Ill., Thomas, 1954

A useful general survey but lacking in documentation. In regard to Islamic and Western medical development during the Middle Ages, see Volume 1, pp. 223—356.

Makhluf, Tewfick

L’ Oeuvre chirurgicale d’ Abul-Cassim Khalaf ibn Abbas ez-Zahrawi, dit Abulcasis.

Thèse de Paris, Librairie M. Lac, 1930.

Probably one of the best studies of al-Zahrāwī’s surgical treatise, with a useful introduction, biography and bibliography.

Majūsī, ‘Alī ibn ‘Abbās al-

Kāmil al-Ṣinā‘ah al-Ṭibbiyyah. Known as *al-Malakī*

Al-Majūsī, known in Latin as Haly Abbas (d. 994), was one of the most illustrious physicians in medieval Islam. He introduced several original ideas resulting from personal observation and experience. His *al-Malakī* (Liber Regius) is a comprehensive encyclopedia of the healing art that influenced medical thought for centuries in the East and to some extent in the West also. It constitutes 20 treatises divided equally into the theory and the practice of medicine. (For details regarding the popularity of such arrangement, see Heinrich Schipperges, “Die arabische Medizin als Praxis und als Theorie,” *Sudhoffs Archiv*, 43 (1959), pp. 317—328). *Al-Malakī* was published in 2 vols., Cairo, Būlāq, 1294 A. H. (1877).



Figure 2. The first page of *Kāmil al-Šinā'ah al-Tibbiyyah* (known also as *al-Malakī*) by 'Alī ibn 'Abbās al-Majūsī (Haly Abbas). It contains the introduction to this book from an Arabic manuscript dated 1190 A. D. Courtesy of Princeton University.

Malkā, Hibat Allāh ben

Al-Mu'tabar fī al-Ḥikmah.

The Jewish physician Ben Malkā (died in Baghdād about 1175) was also a highly reputed philosopher and astronomer. This work, which shows Galenic influence, is considered the best of his medical writings. It was published by the Osmania Oriental Bureau (3 vols., Hyderabad, India, 1938—1939).

Ma'lūf, 'Isā Iskandar

Tārīkh al-Ṭibb 'ind al-'Arāb. Damascus, 1925

This book on the history of Arabic medicine gives a useful survey of medical development under the Caliphs.

Al-Uṣar al-Ṭibbiyyah al-Mash-hūrah fī al-Ṭibb al-'Arabī. Beirut, Adabiyyah Press, 1935

A biographical account of the families that produced several physicians who contributed to medical advances in medieval Islam, such as the Bakhtishū' and the Qurrah al-Ḥarrānī families.

Maqrīzī, Taqī al-Dīn Aḥmad ibn 'Alī al-

Al-Makāyīl wāl-Mawāzīn al-Sāriyah.

This epistle of al-Maqrīzī (1364—1442) gives adequate survey of the development of weights and measures, especially in the late period of medieval Islam. It was edited by O. G. Tychsen, under the title *Tractatus de legalibus arabum ponderibus et mensuris* (Rostochii, 1800).

Māsawayh, Yūḥannā ibn

Daḡhal al-'Ayn.

This is considered the earliest work in Arabic on ophthalmology. It was extracted and briefly commented upon by C. Prufer and Max Meyerhof, under the title "Die Augenheilkunde des Jūḥannā ben Māsawaih (777—857 n. Chr.)," *Der Islam*, 6 (1915), (217)—268.

Jawābir al-Ṭib al-Mufradah.

Māsawayh (Latin Mesue the Elder, 777—857) was a physician who pioneered in the translation of Greek and Syriac medical writings into Arabic. He also wrote several works based on the classical legacy, but most of them are lost. Ibn al-Nadīm lists 19 of them, while Ibn Abi Uṣaybi‘ah attributes 44 to him, many of which are probably spurious. This treatise, *Jawābir*, was edited for the first time with corrections by Paul Sbath, under the French title “*Traité sur les substances simples aromatiques par Youhanna ben Massawaih*,” *Bull. de l’Institut d’Égypte*, 19 (Cairo, 1937), pp. (5)—27. For further detail see the useful article by Martin Levey, “Ibn Māsawaih and His Treatise on Simple Aromatic Substances: Studies in the History of Arabic Pharmacology I,” *Journ. Hist. of Medicine and Allied Sciences*, 16 (1961), pp. (394)—410.

Kitāb al-Aẓminah.

This *Livre des temps* was edited by Paul Sbath, *Bull. de l’Institut d’Égypte*, 15 (1933), pp. 235—257.

Kitāb Mā’ al-Sha‘ir.

This, as far as I know, is a very short article on the therapeutic uses and disadvantages of barley water and methods of preparation and mixing with other drugs. It was edited with a French translation and a useful bio-bibliography by Paul Sbath, under the title “*Le Livre sur l’eau d’orge de Youhanna ben Massawaih*,” *Bull. Institut d’Égypte*, 21 (1938—1939), pp. (13)—24.

Al-Nawādir al-Ṭibbiyyah.

This treatise contains several anecdotes of interest in relation to medical history. It also was edited by Paul Sbath under the French title *Les Axiomes médicaux de Yohanna ben Massawaih* (Cairo, Prix Coûtant, 1934).

Maulavi, Azimu’d-Dīn Aḥmad, see Section III, Khuda Bakhsh Public Library, and Ross, Denison E. et al. (editors)

Mawṣilī, ‘Ammār ibn ‘Alī al-

Al-Muntakhab fī ‘Ilm (‘Ilāji) al-‘Ayn.

This digest on ophthalmology, written about 1010 for the Fatimid Caliph al-Ḥākim (reigned 996—1020) of Egypt, is one of the best writings on the topic in this period. In about 125 chapters it deals systematically with the anatomy and physiology of the eye and the treatment of its diseases by drugs and surgical manipulations. A German translation of the Arabic manuscript at the Escorial library was published with useful annotations by Julius Hirschberg in collaboration with J. Lippert and E. Mittwoch under the title *Die arabischen Augenärzte*. 11. ‘Ammār b. ‘Alī al-Mawṣilī (Leipzig, 1905). A section of the original work was reproduced in facsimile together with a translation and a valuable introduction and comments in four Western languages (Spanish, English, French, and German) by Max Meyerhof, under the title *Las Operaciones de catarata de ‘Ammār ibn ‘Alī al-Mawṣilī, oculista de el Cairo or Ḥikāyāt fī Qaḍḥ al-‘Ayn* (Masnou, Barcelona, 1937), published by Drs. Cusi, Laboratorios del Norte de España.

Maymūn, Mūsā (Mosheh) ben

The Code of Maimonides; Book Ten: The Book of Cleanliness.

A translation from the Hebrew with annotation by Herbert Danby, published as volume VIII, Yale Judaica Series (New Haven, Conn., Yale University Press, 1954). See also Carol Klein, *The Credo of Maimonides, a Synthesis* (New York, Philosophical Library, 1958), which includes a bibliography. No other physician in this Islamic period has been proportionately so extensively studied in the last hundred years as Ben Maymūn (born in Moorish Spain, 1135, and died in Cairo, 1204), and the reader finds several useful bibliographies even in the few entries mentioned here. Regarding his life see Max Felshin, *Moses Maimonides, Rambam* (New York, Book Guild, 1956).

Fī Tadbīr al-Ṣiḥḥah.

Maimonides wrote this *Regimen Sanitatis* in 1198 for his patron, King al-Afdāl ‘Alī, son of Sultan Ṣalāh al-Dīn (Saladin).

It contains essays on general hygiene, poisons, delirium, care for the sick, medical recipes and aphorisms, comments on al-Razi's *Bur Sā'ah*, and sayings of other learned men. It was edited in the original Arabic for the first time by 'Awad Wāṣif (Cairo, al-Muḥit, 1st ed., 1908; 2nd ed., 1932). In Latin version it was first edited in 1514. An edition of a 13th-century Hebrew version by Rabbi Moshe ben Tibbon, with preface and introduction in Hebrew and English, together with indices in English, Arabic, Greek, and Hebrew, was made by Suessmann Muntner, under the general English title *Maimonides (Moshe ben Maimon) Medical Works* (vol. 1, Jerusalem, Mosad Harav Kook, 1957). A translation supposedly from the original Arabic text, was completed by Hirsch L. Gordon, entitled *The Preservation of Youth; Essays on Health* (New York, Philosophical Library, 1958). For further information see Max Meyerhof, "L'Oeuvre médicale de Maimonide," *Archeion*, 11 (1929), pp. 136—155; and Meyerhof's other article, "The Medical Works of Maimonides," in *Essays on Maimonides*, edited by Salo Wittmayer Baron (New York, Columbia University, 1941). The discourse *Fi Bayān al-A'rāḍ* was edited with translation and comments by H. Kroner, under the title "Der medicinische Schwanengesang des Maimonides 'Fi Bajān al-A'rāḍ. Über die Erklärung der Zufälle," *Janus*, 32 (1928), (12)—61.

Fuṣūl Mūsā (al-Fuṣūl) fī al-Ṭibb.

Ethics of the medical profession and a commentary on the aphorisms of Hippocrates. This work, comprising 25 treatises, was completed between 1187 and 1190 and was widely read in the late Middle Ages both in the original Arabic and in translations. Here Maimonides praises al-Fārābī (died at Damascus in 950), Ibn Riḍwān of Egypt (d. 1068), and Ibn Rushd (Averroes, 1126—1198), but criticizes Galen. The Hebrew version by Nathan Hameathī of 1283 was recently edited with an introduction and title-page in English by Suessmann Muntner in the series *Moshe ben Maimon's (Maimonides) Medical Works* (2 vols. Jerusalem, Mosad Harav Kook, 1959 to 1961). It includes (pp. 19—32) the English translation from the Arabic by Joseph Schacht and Max Meyerhof of

chapters 59—97 of treatise 25, on “Maimonides against Galen,” first published in *Bull. Fac. des Arts*, vol. 5, pt. 1 (Cairo, 1939). For further detail see Harry Friedenwald, “Moses Maimonides the Physician,” *Bull. Inst. Hist. Med.*, vol. 3 (Baltimore, 1935), pp. 555—584.

Segreto dei segreti.

This work ascribed to Ben Maymūn (Moses ben Maimon) was translated into Italian with introduction and commentary by Umberto de Martini (Rome, Istituto di Storia della Medicina dell' Università de Roma, 1960).

Sharḥ Asmā' al-'Uqqār.

This is an alphabetically arranged discourse on the uses of drugs and their identification. It was translated for the first time from a unique manuscript with a very useful introduction, vocabularies, and indices, as well as a scholarly commentary and annotation by Max Meyerhof, under the title *Un Glossaire de matière médicale composé par Maimonide* (Cairo, Institut Français d'Archéol. Orient., 1940), published under the auspices of the *Institut d'Égypte*.

Al-Sumūn wāl-Mutaḥarriḡ min al-Adwiyah al-Qattālah.

Ben Maymūn wrote this treatise in 1199 in Arabic. It was dedicated to his patron and friend, the judge 'Abd al-Raḥmān ibn 'Alī al-Baysānī, known as al-Qāḍī al-Fāḍil; hence the treatise is called *al-Fāḍiliyyah*. It discusses mainly poisons from vegetable, animal, and mineral origins and their antidotes. It was translated into French from the Hebrew version with alphabetical labels of pharmaceutical words in Arabic and Hebrew by J. Michel Rabbinowicz, under the title *Traité des poisons de Maimonide* (Paris, Librairie Lipschutz, 1865, reprinted in 1935). See also Suessmann Muntner, *Poisons and Their Antidotes of Maimonides* (vol. 2 Jerusalem, 1942), volume 1 being *The Book on Asthma* (Jerusalem, 1940). I have consulted the 115 pages édition by Muntner entitled *The Medical Writings of Moses Maimonides*. Vol. 1: *Treatise on Asthma*, Philadelphia, Pa., Lippincott, 1963.

Mazlūm, Vitalis

Kitāb Mazlūm fī al- Māddah al-Ṭibīyyah wāt-Aqrābādhīn. 2nd ed., Cairo, al-Īhrām, 1912

This valuable book is divided into four sections (parts): materia medica following alphabetical order, pharmaceutical preparations and pharmacopeias, urinalysis, and poisons and their antidotes.

Meyer, Ernst H. F.

Geschichte der Botanik. 4 vols., Königsberg, 1854—1857

This work is the best modern history on the topic up to the second half of the 19th century. Of interest to us is Volume 3, Königsberg, 1856 (pp. 89—329), on the general history of botany and materia medica during the Islamic period.

Meyer, Ernst von

Geschichte der Chemie von den ältesten Zeiten bis zur Gegenwart. Leipzig, 1891, 4th ed. rev. and enlarged, Leipzig, 1914

As an introduction to the science of chemistry, this important and comprehensive history discusses the origin and nature of early chemistry in antiquity and in Islam. George McGowan translated this book (3rd edition, 1905) under the title *A History of Chemistry from Earliest Times to the Present*, London, 1906.

Meyer-Steineg, Theodor, and Sudhoff, Karl

Geschichte der Medizin im Überblick mit Abbildungen. 3 vols., Jena, 1921—1928

Very useful illustrated general survey. Regarding the Islamic legacy (Volume 1, pp. 247—271) this work stresses the fact that translations of Arabic medical works in Western languages continued to have high prestige until the Renaissance, even after the rediscovery of the original Greek which then gradually gained influence although with reservations.

Meyerhof, Max

“Die allgemeine Botanik und Pharmakologie des Edrisi,”

Archiv für Geschichte der Mathem., der Naturwiss. und d. Technik.
Vol. 12, Leipzig, 1930

A useful survey of the materia medica and medical therapy as presented by the celebrated Muslim geographer and scholar, Abū 'Abd Allāh al-Sharīf al-Idrīsī (d. 1166).

For Bibliographies of the writings of Meyerhof see Claudius F. Meyer, "Arabism, Egypt, and Max Meyerhof," *Bull. History of Medicine*, 19 (1946), 375—432; Uri ben Harin, *The Works of Max Meyerhof: A Bibliography* (Jerusalem, 1944); and Joseph Schacht, "Max Meyerhof", *Osiris*, 9 (1950), pp. (7)—32.

Le Monde islamique. Paris, Rieder, 1926

This brief illustrated essay explains the impact of Islamic culture on world history and its significance in intellectual circles.

"Von Alexandrien nach Bagdad. Ein Beitrag zur Geschichte des philosophischen und medizinischen Unterrichts bei den Arabern," *Sitzungsberichte der Preussischen Akademie der Wissenschaften, Phil.-hist. Klasse XXIII*, Berlin, 1930

A useful survey of the transferring of teaching activities from Alexandria to Antioch in northwest Syria to Harrān in Mesopotamia and later to the capital of the Abbasids, Baghdād. See also his essay, "La Fin de l'École d'Alexandrie d'après quelques auteurs arabes," *Archeion*, Vol. 15, Rome and Paris, 1933, pp. 1—15.

Meyerhof, Max, and Joannides, D.

La Gynécologie et l'obstétrique chez Avicenne (Ibn Sina) et leurs rapports avec celles des Grecs. Cairo, Schindler, 1938

This illustrated booklet outlines the transmission of Greek gynecology into Arabic and discusses in detail the gynecology of Ibn Sina (980—1037), his anatomy, physiology, and a short biography.

Mez, Adam

Die Renaissance des Islams. Heidelberg, C. Winters Universitätsbuchhandlung, Heidelberg, 1922

This very useful book deals particularly with the climax of Islamic culture during the 9th and 10th centuries. It was translated by S. Khuda Bakhsh and D. S. Margoliouth, under the title *The Renaissance of Islam* (Patna, India, Jubilee Printing and Publishing House, 1937).

Michailowsky, Elias

Die Augenheilkunde des Avicenna. Berlin, Eberino, 1900

This short 36 pages essay contains one plate. It centers around Ibn Sīnā's discussion of the anatomy, physiology, and treatment of eye disease as reported in *al-Qānūn*.

Mieli, Aldo

La Science arabe et son rôle dans l'évolution scientifique mondiale.

Avec quelques additions de Henri-Paul-Joseph Renaud, Max Meyerhof, et Julius Ruska. Leiden, Brill, 1938

This valuable survey presents the history of the ancient cultures of China, India, ancient Near East, and Greco-Roman, and then the role of the sciences in medieval Islam, including the health field professions. It includes a bibliography (pp. 292—318). See Mieli's revised version in Spanish under the title *Panorama general de historia de la ciencia, II. el mundo Islamico* (Madrid, 1946).

Pagine de storia della chimica, Rome, 1922

A useful, illustrated book.

Milad, Ahmed ben

L'École médicale de Kairouan aux X^e et XI^e siècles. Paris, 1933

This valuable study includes detailed biographies of such physicians as Ishāq ibn 'Imrān and Aḥmad Ibn al-Jazzār (d. 1009) of al-Qayrawān. The author relied heavily on Ibn Abī Uṣaybi'ah and other Arabic sources for information.

Miles, George C.

Early Arabic Glass Weights and Stamps. New York, The American Numismatic Society, 1948, and Supplement, New York, 1951

This and other contributions by the author based on the study of artifacts are important for the understanding of the systems of weights and measures used during the Islamic period.

Mis'ad, Būlus

Ibn Sīnā al-Faylasūf. A special issue of *Al-Muqtaṭaf*, vol. 120, no. 4 (April, 1952), pp. V, 1—59

Commemorates the 75th anniversary of the journal *al-Muqtaṭaf* and the millenary anniversary of Ibn Sīnā after the Hijrah reckoning. This publication gives a bio-bibliography of Ibn Sina and evaluates his writings on philosophy, psychology, and Islamic theology. It includes a portrait by the famous painter, poet, and philosopher Kahlil Gibran (Jubrān Khalil Jubrān).

Morejon, A. H.

Historia de la medicina española. 7 vols., Madrid, Historia Bibliografía, 1842

Includes the Islamic period and its contribution.

Moses ben Maimon, see Maymun (spelled also Maymon), Mūsā (Mosheh) ben

Muḥammad 'Alī, Aḥmad Ḥamdī ibn

De l'elephantiasis des arabes. Paris, Asselin, 1869

Original, illustrated study.

Muḥammad ibn Zakariyyā; see Rāzī, Abū Bakr Muḥammad ibn Z. al-

Munāsif, Muḥammad ibn 'Isā ibn al-

Al-Mudbabbahab.

A discourse of medical practice in Moorish Spain during the first quarter of the 13th century. The work was edited with French translation by Joaquim M. Penuele, under the title *Die Goldene* (Rome, 1941).

Murray, James A.

The Plants and Drugs of Sind. London and Bombay, 1881

A descriptive list of the indigenous flora of Pakistan and their uses in medicine, arts, and commerce.

Mūsā, ‘Iyāḍ ibn

Kitāb al-Shifā.

This comprehensive work on the healing art by Mūsā (1083—1149) has been edited in 2 vols., Cairo, 1911.

Muschler, Reno

Flora of Egypt. 2 vols., Berlin, 1912

A useful manual for identifying Arabic botanical words.

Nadīm, Muḥammad ibn Ishāq ibn al-

Al-Fihrist

This reliable bio-bibliographical index of authors, schools of thought, literary and scientific writings in Arabic together with the translations from Greek, Persian, Indian, and Syriac, in ten treatises, is indispensable to any researcher of Islamic culture up to the time of its completion in 987. Ibn al-Nadīm (d. 995) was by profession a bookseller (hence called al-Warraḡ, i. e. the stationer), a vocation sought then by learned men. The copying, correcting, binding, and cataloging of manuscripts in his shop gave Ibn al-Nadīm the added advantage of accumulating this index which stands as one of the most useful and significant catalogs of the literary and scientific output during this fertile period in Islamic civilization. The *Fihrist* was edited with annotation by Gustav Flügel, assisted by Johannes Roediger and August Müller (2 vols., Leipzig, Vogel, 1871 bis 1872). It was also published in Cairo, al-Istiḡāmah, (1929). Of special interest is the seventh treatise (maqālah) on the origin of the healing art, biographies of ancient sages as well as physicians under the Islamic rule and their contributions. Likewise treatise ten on alchemists.

Naficy, Abbas

La Médecine en Perse, des origines à nos jours

Ses fondements théoriques d'après l'Encyclopédie médicale de Gorgoni

Paris, Editions Véga, 1933

A short survey of Persian medicine which derived much from the 12 th century medical thesaurus of Ismā'il ibn Ḥasan al-Jurjānī, entitled *Zakhīre-ī-Khwārazmshāhī*.

Nafisī, Sa'īd

Bibliographie des principaux travaux européens sur Avicenne. Tehran,

Publication of the University of Tehran, no, 173, 1953

Neuburger, Max

Geschichte der Medizin. 2 vols. (in 3 parts), Stuttgart, Enke, 1906—1911

Arabic medicine is discussed in Volume II (Part 1, p. 142ff.) in this comprehensive and well documented study. Volumes 1—2 (Pt. 1) were translated into English by Ernest Playfair, under the title *History of Medicine* (London, Frowde, and Oxford University Press, 1910—1925). See a valuable and intelligent review by Stephen D'Irsay, *Isis*, 9 (1927), pp. 486—489

Neuburger, Max, and Pagel, Julius

Handbuch der Geschichte der Medizin. 3 vols., Jena, Fischer, 1902—1905

Volume 1 (1902) of this comprehensive and well documented work covers the history of medicine in the ancient civilizations: China, Japan, Korea, India, Egypt, Babylonia, Greece, and Rome. It then presents medical developments during the Middle Ages: Western, Byzantine, and Arabic (for Arabic medicine see pp. 589—621).

Nimeh, W.

Alminar de la medicina arabe. Habana, Imprenta Garate, 1944

A useful survey, not documented.

O,Leary, de Lacy

How Greek Science Passed to the Arabs. London, Routledge and Paul, 1949

Emphasizes Greek influence on Islam that came directly by way of Syria and Egypt and indirectly from India and Persia, mainly through eastern Christian scholars who knew Syriac or Greek or both. This book includes a bibliography (pp. 189—192)

Opitz, Adolf H. Karl

Die Medizin im Koran. Stuttgart, Enke, 1906

Osler, William B.

The Evolution of Modern Medicine. New Haven, Conn., Yale Univ. Press, and London, Milford-Oxford University Press, 1922

“A series of lectures delivered at Yale University on the Silliman Foundation in April, 1913,” which includes a chapter on medieval medicine.

Pansier, P.

Breve conspecto de la oftalmología árabe. Masnou-Barcelona, Laboratorios del Norte de España, 1956

Includes introduction, notes and an appendix by J. M. Millas Vallicrosa.

Partington, James R.

A Short History of Chemistry. 2nd ed., London, MacMillan, 1951. Rev. and enlarged London, 1957 (first published in London, 1937).

This fine survey includes a chapter on chemistry in Islam. *A History of Chemistry.* Vols. II & III., London, MacMillan, and New York, St. Martin's Press, 1961—1962

This monumental work is to be completed in 4 volumes of which the 2nd and 3rd have been already published. Volume I, however, will presumably include the development of chemistry in Islam, but has not come out yet (February, 1964).

Paul of Aegineta (Aegina)

The Byzantine physician, Paulus, flourished in Alexandria, Egypt, in the first half of the seventh century during the early days of the Arabic conquest. He wrote his encyclopedic medical compendium of seven books in Greek. It was translated and widely read in Arabic up to the 11th century, influencing the development of surgery and medical therapy in medieval Islam. The seven books were translated into English by Francis Adams under the title *The Seven Books of Paulus Aegineta* (3 vols., London, Sydenham Society, 1844—1847). The added commentary by Adams gives important information regarding medical developments during the Greco-Roman and the Arabic periods.

The first complete translation in German was made by Julius Berendes, *Paulos' von Aegina des besten Arztes Sieben Bücher* (Leiden, Brill, 1914). This amply annotated version includes a valuable introduction by R. Kahert.

Post, George Edward (See also p. 191)

Al-Akrabadin (Materia Medica). Beirut, American University Press, 1874—1876

Follows 19th century textbooks on medical botany, and is useful for the identification of botanical and pharmaceutical terms used in Arabic medieval writings.

Flora of Syria, Palestine, and Sinai. Beirut, American Univ., 1896.

Qazwīnī, Zakariyyā ibn Muḥammad al-

‘Ajā’ib al-Makhlūqāt wa-Gharā’ib al-Mawjūdāt

On natural history, zoology, cosmography, politics, literature, and history. Because of this work, al-Qazwīnī (1203—1283) was called the Pliny of the Arabs. It was edited by F. Wüstenfeld (Göttingen, 1849); and printed in Cairo, al-Taḡaddum, n. d. The zoological section was edited by J. Stephenson (London, 1928), with an English translation.

Quer, P. Font, see p. 191.

Qifṭī, ‘Alī ibn Yūsuf al-

Ikkbār al-‘Ulamā bi-Akbbār al-Ḥukamā, known also as Tārīkh al-Ḥukamā

Invaluable, alphabetically arranged bio-bibliography of learned men and physicians who contributed to Islamic culture. The extant work of al-Qifṭī (born in Qifṭ in upper Egypt, 1172; died in Aleppo, Syria, 1248) is an abridgement of the original made one year after the author's death by Muḥammad ibn 'Alī al-Zawzānī, under the title *al-Multaqaṭāt (al-Muntakhabāt) min Kitāb Ikbār al-Ḥukamā* (Selections from the History of the Sages). It was edited by Julius Lippert (Berlin-Leipzig, 1903); and by M. Amīn al-Khānjī by comparing the Leipzig edition with the three existing manuscripts at the Egyptian National Library (Cairo, al-Sa'ādah, 1326 A. H. (1908)).

Quff, Abū al-Faraj ibn Ya'qūb ibn Ishāq Amīn al-Dawlah ibn al-

Al-'Umdah fī Ṣinā'at al-Jirāḥah

Ibn al-Quff (b. in al-Karak, Jordan, 1233; d. in Damascus, 1286) wrote this manual to surgeons in 20 treatises. As a comprehensive work completely devoted to surgery it is one of the best known in medieval Islam. It describes with some clarity the connection between the arteries and the veins and the need for conducting pores between them (see my article, "Thirteenth Century Physician Interprets Connection Between Arteries and Veins," *Sudhoffs Archiv für Geschichte der Medizin und der Naturwissenschaften*, 46 (1962), pp. [17]—26).

The work generally discusses definitions and descriptions of surgery, diseases, humors, temperaments, anatomy, diagnosis and medical therapy, the treatment of wounds and bones, and manual operations. It was published in 2 vols., Hyderabad, India, 1356 A. H. (1937).

Al-Uṣūl fī Sharḥ al-Fuṣūl

A detailed commentary in two volumes on the aphorisms of Hippocrates. It was abridged and edited with French translation by Bishārah Zalzal (Alexandria, Egypt, Khidaywiyyah Press, 1902).

Qurrah, Thābit ibn

Al-Dhakhīrah fī 'Ilm al-Ṭibb

Thābit (ca. 836—901) is probably the greatest scholar of the Sabians (star-worshippers) of Ḥarrān, and this is the best known



Figure 3. Introductory page of *al-Umdah*, by the physician-surgeon Abū al-Faraj ibn al-Quff. Courtesy of the British Museum.

of his medical works. He wrote it for his son Sinān, who became a distinguished physician and a pioneer public health reformer in medieval Islam. The *Dhakhīrah* in 31 chapters generally covers the whole field of the healing art: description and treatment of diseases, dermatology, physiology and pathology of the hair, fevers (which were then considered a disease), obstetrics, tumors, poisons and antidotes, surgery of wounds and bones, hygiene, milk and wine in diet and medicine. It was edited by George F. Sobhy (Cairo, University Press, 1928).

I am inclined to believe that this is not an authentic work, but it was written in the late 10th century and was attributed to Thabit ibn Qurrah for the sake of prestige only. For further comments and useful outline see Max Meyerhof, "The Book of Treasure, an early Arabic Treatise on Medicine," *Isis*, 14 (1930), pp. 55—76.

Qurṭubī, Arīb ibn Saʿīd (Saʿd) al-Kātib al-

Khalq al-Janīn wa-Tadbīr al-Ḥabāla wāl-Mawlūdīn

On gynecology, the hygiene of pregnant women and newly born babies, and on obstetrics, written about 965. This interesting work preceded over a quarter of a century an elaborate discussion on the same topic in *al-Taṣrīf* by Abū al-Qāsim al-Zahrāwī (Abulcasis), also a physician of Moorish Spain. The *Khalq* was edited with French translation and annotation by Henri Jahier and Abdel Kader Noureddine and published under the auspices of the *Faculté Mixte de Médecine et de Pharmacie d'Alger*, under the title *Le Livre de la génération du fœtus et le traitement des femmes enceintes et des nouveau-nés* (Alger, Algeria, Librairie Ferraris, 1956).

Ramis, Aly Ibrahim

Bestimmungstabellen zur Flora von Aegypten. Jena, 1929

Mainly on contemporary flora of Egypt.

Ray, P. C.

History of Chemistry in Ancient and Medieval India. Calcutta, 1956

One of the best works on the subject.

Rāzī, Abū Bakr Muḥammad ibn Zakariyyā al-
Bur' al-Sā'ab (or *Bur' Sā'ab*)

Al-Rāzī (ca. 865—ca. 932) ranks among the greatest clinicians of the Middle Ages. He was a prolific author whose writings influenced the medical profession for over six centuries. For a bio-bibliography based on oriental sources see G. S. A. Ranking, "The Life and Works of Rhazes (Abu Bakr Muḥammad bin Zakariya ar-Razi), *Proceedings of the 17th International Congress of Medicine, History of Medicine Section*, No. 23, held in London, 1913, and printed (London, 1914), pp. 237—268. Al-Rāzī wrote his *Bur'* to the Wazīr Abū al-Qāsim 'Abd Allāh regarding certain ailments such as headaches and colds which could be healed in a short period of time, even in one hour. This he did in protest against an argument raised by some uncultured physicians who claimed, not on bases of experimentation and clinical observation but merely by philosophical interpretation, that a sickness caused by the excessive increase of one or more humors for a period of days and months needs an equal amount of time with the right kind of medical treatment to be cured. The author rebuked selfishness in such reasoning "for the aim of these practitioners is to keep on going to and coming from visiting their patient (during all this time) to charge him more."

What al-Rāzī emphasized in this discourse was a revolutionary approach to medical therapy, a vigorous concept which modern sciences related to the health field now propagate in attempting to cure diseases in a very short interval at the early stages of their spread, which otherwise might develop into chronic cases. It was edited and translated into French with annotations by P. Guigues, under the title *La Guérison en une heure par Razès* (Beirut, Imprimerie Catholique, 1903/4).

Al-Fākhir. See Koning, P. de, *Traité sur le calcul* . . .

Al-Ḥāwī fī al-Ṭibb

This famous medical encyclopedia was compiled, but not completely organized, in the lifetime of the author. It consists, according to Ibn al-Nadīm (d. 995), of 12 treatises, but other



Figure 4. The Medical encyclopedia, *al-Hāwī fi al-Ṭibb* by Abū Bakr Muhammad al-Rāzī (Latin Rhazes) is his last and most comprehensive work. This page introduces his discussion on the diseases of the nervous system. Courtesy of McGill University, Montreal, Canada.

chroniclers reported different numbers and arrangement of contents. Generally, the subject matter includes diseases of the various organs of the body and their treatment, together with description of human anatomy and physiology, surgical manipulation, materia medica, compounded drugs and pharmaceutical preparations, weights and measures, and hygiene and diet. It has been published by the Osmania Oriental Publications Bureau, under the title *Kitābu'l-Hāwī fī't-Tibb (Rhazes' Liber Continens)*, by Abu Bakr Muḥammad B. Zakariyya Ar-Rāzī, d. 313 A.H./925 A.D. (12 parts, Hyderabad, India, 1955–1962). This edition is based mainly on manuscripts Nos. 806, 807, and 810 at the Escorial Library, Spain. Regarding dental surgery in al-Hāwī, see the dissertation by R. R. Tittmann, *Was berichtet der arabische Arzt Rhazes in seinen "Continens" aus griechischen Ärzten über Zahnheilkunde* (Leipzig, 1925). See also Meyerhof's article "Thirtythree clinical observations by Rhazes (circa 900 A.D.)", *Isis*, 23 (1935), pp. 321–356, plus 16p. Arabic text.

Al-Jadri wāl-Ḥaṣbah

This treatise on smallpox and measles is a monumental contribution to medical knowledge in the Middle Ages. It was translated into English with annotation by William A. Greenhill (London, Sydenham Society, 1848); into German by Karl Opitz under the title *Ar-Raḥī (Razes) über die Pocken und die Masern (ca. 900 n. Chr.)*. (Leipzig, Barth, 1911) in *Klassiker der Medizin*; and twice into French: by Jacques Paulet (Paris, 1763) and by Lucien Leclerc and A. Lenoir (Paris, 1866). It was edited in Arabic with a Latin translation and introduction by Johannis Channing, *Rhazes de variolis et morbillis* (London, 1766). The Arabic text was also edited by Cornelius van Dyck (Beirut, American Press, 1872).

Manāfi' al-Aghdhīyah wa-Daf' Maḍārribā

On the uses of diet and precautions against harm that might be caused to certain people by certain types of food. In spite of his reliance on Galen and his admiration of Greek learning, al-Rāzī criticizes Galen for errors and omissions in his similar writings on diet. Of interest in this essay is the author's de-

scription of the uses of wheat, wines, fish, fruits, and their bad effects in certain cases. It was published in Cairo, Khayriyyah Press, 1305 A. H. (1888).

Al-Manṣūrī

This well organized medical encyclopedia, consisting of ten treatises, played a great role in influencing the development of the healing art during the Middle Ages. It was translated into Latin by the celebrated Gerard of Cremona (1114—1187) and thus enjoyed a good reputation in the West. It was taught at the University of Tübingen, Germany, up to the close of the 15th century, and was first published in Milan under the title *Liber Medicinalis Almansorem*, 1481, and then in 1489. This work was studied by Andreas Vesalius, who in late 1536 made a critical edition of the 9th treatise under the title *De singularum corporis partium affectum curatione*, which has been incorporated in a 1543 Basle, Henripetri, edition of *Almansorem* (pp. 212—275).

Sirr al-Asrār

On alchemy. This work has been translated with comments, biography of the author and annotations by Julius Ruska under the title, *Al-Rāzī Buch Geheimnis der Geheimnisse* (Berlin, Springer, 1937), published as volume 6 in *Quellen und Studien zur Geschichte der Naturwissenschaften und der Medizin*, pp. 1—246. Ibn al-Nadīm (*Fihrist*, Cairo edition, p. 518) states that al-Rāzī wrote this work in addition to his *Kitāb al-Asrār*.

Al-Ṭibb al-Rūḥānī

This psychological treatise shows a unique facet of al-Rāzī as a philosopher and original thinker. It was translated from the Arabic with a useful introduction by Arthur J. Arberry under the title *The Spiritual Physick of Rhazes* (London, Murray, 1950).

Read, John

Through Alchemy to Chemistry, a Procession of Ideas and Personalities. London, 1957

A general survey of the subject from ancient Egypt and Babylon through medieval Islam to modern chemistry. Useful as a short textbook on the story of chemistry.

Prelude to Chemistry: An Outline of Alchemy, Its Literature and Relationships. London, Bell, 1936, 2nd ed. 1939. Reprinted London, Oldbourne, 1961

Real, Eduardo Garcíá del

Historia de la medicina en España. Madrid, 1921

Renan, Ernest

Averroes et l'Averoisme: Essai historique. 3rd ed. Paris, Lévy Frères, 1866; reprinted several times since the first edition.

A classical work on the subject.

Rénaud, H. P. J.

Étude sur le Taqwīm al-adwīya d'Al-Alāī, médecin arabe de l'époque des Croisades. Pisa, 1939

Essay presented first to the 8th International Congress of the History of Medicine in Rome, 1930. It is based on a study of the *Taqwīm al-Adwiyah al-Mufradah* (completed ca. 1155) on materia medica by Ibrāhīm ibn Abī Sa'īd al-'Alā'ī.

La Prétendue "Hygiène d'Abulcasis" et sa véritable origine. Lisboa, Portugal, 1941

Trois Études d'histoire de la médecine arabe en occident. Paris, Hespéris, 1931

Three essays on writings by the renowned physician in Moorish Spain, Ibn Zuhr (Latin Avenzoar, 1113—1162) based on manuscripts found early this century. See also Renaud's "De quelques acquisitions recéntes sur l'histoire de la médecine arabe au Maroc," *Actes du V^e Congrès International d'Histoire de la Médecine* (Geneva, 1925).

Rénaud, H. P. J., and Colin, Georges S. (editors)

Tuhfat al-Ahbāb (Glossaire de la matière médicale Marocaine). Paris, Geuthner, 1934. Published as Vol. 24 of the series Publications de l'Institut des Hautes Études Marocaines.

A text of materia medica by an anonymous Moroccan author, probably of the 17th century. The introduction and commentary

by the two editors give useful information on the therapeutic “virtues” and identification of crude drugs used during the Islamic period.

Rey, Paule

La Pensée médicale et philosophique d'Avicenne. Geneva, 1958

A 69-page thesis presented to the faculty of medicine at the university in Geneva.

Rhazes; see Rāzī, Abū Bakr Muḥammad ibn Zakariyyā al-

Riesmann, David

The Story of Medicine in the Middle Ages. New York, Hoeber, 1936

Includes only a brief discussion on Arabic medicine. However, this book contains useful information regarding monastic medicine and the rise of medical education in the West.

Ruhawī, Ayyūb al-

Book of Treasures

This English title was given to the encyclopedia of al-Ruhawī (Job of Edessa) on philosophy and natural sciences as taught in Baghdad about 817. The English translation as well as the Syriac text as copied by the editor, Alphonse Mingana, was published as Volume I by the Woodbrooke Scientific Publications (Cambridge, England, Heffer, 1935).

Rushd, Abū al-Walīd Muḥammad ibn Aḥmad ibn

Al-Kulliyāt.

A medico-philosophical encyclopedia (colliget), the best known of Ibn Rushd's (d. 1199) medical writings. It was edited with notes in Arabic and Spanish from an early, unique manuscript and was published by the Instituto General Franco (Larache, Morocco, Artes Graficas Bosca, 1939). A Hebrew version of it was edited with annotation, appendix, and a list of described materia medica substances by Suessmann Muntner (Jerusalem, Kirjāth Sepher, 1946).

Ruska, Julius

Arabische Alchemisten, I. *Chalid ibn Jaʿzīd ibn Muʿāwīja*, II. *Gaʿfar al-Ṣādiq, der Sechste Imām*. Heidelberg, Winter's Universitätsbuchhandlung, 1924

Here Ruska overthrows the traditional concept that Prince Khālid ibn Yazīd (d. 704 or 708) and the Imām Jaʿfar al-Ṣādiq (d. 765) were pioneer chemists who wrote and experimented on chemical products and processes. Accordingly, he affirms that works ascribed to them are spurious.

Das Buch der Alaune und Salze ; ein Grundwerk der spätleinischen Alchemie.

Edited, translated, and commented upon by J. Ruska (Berlin, 1935)

On minerals, astrology, and alchemical writings. Ruska attributes this work, which was ascribed to al-Rāzī, to an 11th- or 12th-century Moorish alchemist. For a bio-bibliography of Ruska see Paul Kraus, "Julius Ruska," *Osiris*, 5 (1938), 5—20.

Die bisherigen Versuche das Dschabir-Problem zu lösen, Forschungsinst. für Geschichte der Naturwissenschaften III. Jahresbericht. Berlin, 1930

Ruska here states (pp. 19—20) that early alchemical developments in Persia differed substantially from those originated in Egypt.

Sal Ammoniacus, Nushadir und Salmiak. Heidelberg, 1923

A discussion of the discovery and preparation of Sal Ammoniac (salt of ammonium chloride, which easily dissolves in water and sublimates by heat). The Arabic word al-Nūshādīr for Sal Ammoniac comes from the Persian Nū-Shāder.

Tabula Smaragdina, IV. Ein Beitrag zur Geschichte der Hermetischen Literatur. Heidelberg, Winter's Universitätsbuchhandlung, 1926

Discusses alchemy and astrology in relation to the Hermetic writings in the Arabic version, together with Latin text and

a translation and commentary in German. For a revised view see Martin Plessner, "Neue Materialien zur Geschichte der Tabula Smaragdina," *Der Islam*, 16 (1927), pp. 77—113.

Turba Philosophorum. Ein Beitrag zur Geschichte der Alchemie. Published in *Quellen und Studien zur Geschichte der Naturwissenschaften und der Medizin*, Vol. 1, Berlin, 1931

Discussion of cosmological and alchemical writings of learned men as transferred and known about 900 A. D. For detail see M. Plessner, "The Place of the Turba Philosophorum in the Development of Alchemy," *Isis*, 45 (1954), 331—338.

Ruska, Julius, and Kraus, Paul

Der Zusammenbruch der Dschabir Legende. Berlin, 1930

Attacks the Jābirean tradition and the authenticity of the great bulk of alchemical writings attributed to Jābir ibn Ḥayyān.

Sa'dī, Lutfī M.

Ibn al-Haitham (Albāṣen) ano 1026 D. J. Masnou, Barcelona, Labs. d. Norte de España, 1957

Short essay on Arabic ophthalmology up to al-Haytham's time, with elaborate study of his writings on the subject.

Šā'id ibn Aḥmad ibn Ša'id al-Andalusī. See Ṭulayṭulī, Šā'id ibn Aḥmad ibn Ša'id al-

Samajūn, Abū Bakr Ḥāmid ibn

Al-Jāmi' fī al-Adwiyah al-Mufradah.

This work on materia medica as far as we know is now lost. However, a fragment is found in the British Museum. It has been edited with useful annotation by Paul Kahle under the title "Ibn Samaḡūn und sein Drogenbuch, ein Kapitel aus den Anfängen der arabischen Medizin." It appeared with other articles edited by Johann Fück in *Documenta Islamica Inedita* (Berlin, Akademie Verlag, 1952), pp. 25—44.

Saqaṭī, Abū 'Abd Allāh Muḥammad al-

Fī Adāb al-Ḥisbah.

This treatise on the inspection of merchants for the repression of fraud to guard the public welfare consists of 8 sections.

Two are of special interest to medical sciences: one devoted to pharmacists and the sale of drugs and another on measures and weights in Moorish Spain about the end of the 11th century. It was edited with a useful introduction, linguistic notes, and a glossary by G. S. Colin and E. Lévi-Provençal under the title *Un manuel Hispanique de Hisba* (Paris, Leroux, 1931), as vol. 21 of the Publications de l'Institut des Hautes-Études Marocaines.

Sarton, George

The Appreciation of Ancient and Medieval Science during the Renaissance (1450—1600). Philadelphia, University of Pennsylvania, 1955

Stresses the aim of scholars to humanize science especially in view of the fact that “too many of our scientists are technicians and nothing more.”

Galen of Pergamon, Logan Clendening Lectures on the History and Philosophy of Medicine. 1st ed., University of Kansas City, Mo., 1954; reprinted, 1957

Useful work on the life and writings of a physician whose influence on medical development in Islam cannot be over-emphasized.

The History of Science and the New Humanism. Providence, R. I., Brown University 1931; Cambridge, Mass., Harvard University, 1937; and Bloomington, Indiana University Press, Midland Book Edition, 1962, delivered as Clover and E. Root lectures.

Emphasizes the value of studying Eastern civilizations, especially the Islamic, and their contribution to the West.

Introduction to the History of Science. 3 vols. (5 parts), Baltimore, Md., Williams and Wilkins, 1927—1949

Published for the Carnegie Institute of Washington

The contribution of this indispensable work to an understanding and critical evaluation of Islamic culture in general cannot be overemphasized. As a great scholar and humanist,

Sarton stands as one of the most noted historians of science, who in a vigorous and lively style stimulates a tolerant and deeper appreciation of Islamic civilization.

Sbath, Paul, and Avierinos, Christo D., (editors and translators)

Deux traités médicaux par Sablān ibn Kaysān et Rašīd al-Dīn Abū Ḥulayqa.

Cairo, Institut Français d'Archéologie Orientale, 1953

Very useful reference especially regarding the history of pharmacy and materia medica in medieval Islam. These two treatises of the 10th and 13th centuries respectively provide a useful example of comparison regarding the development of therapy and pharmaceutical techniques in the two centuries represented.

Schacht, Joseph, and Meyerhof, Max

The Medico-Philosophical Controversy between Ibn Butlan of Baghdad and Ibn Ridwan of Cairo. A Contribution to the History of Greek Learning Among the Arabs. Cairo, University Press, 1937

Besides discussing the issues involved in this controversy, the book emphasizes two points: one, that Arabic sciences in Islam were almost wholly dependent on the Greek legacy and not on Indian sciences; two, that fanatic theologians and their interpretation of Islamic orthodoxy always opposed independent intellectual research and the explanation of natural phenomena based on original observations, and thus hampered great original scientific contributions. It includes Arabic text with translation and annotations in English.

Schelenz, Hermann

Geschichte der Pharmazie. Berlin, 1904; reprinted, Hildesheim, 1961

This remarkable work was, and in many respects still is, one of the best general histories of pharmacy ever published. It devotes a good portion to medical and pharmaceutical development in Islam.

Schipperges, Heinrich

Ideologie und Historiographie des Arabismus. Published in *Sudhoffs Archiv*, Wiesbaden, Steiner, Beiheft, No. 1 (1961), pp. 1—76

The best essay written thus far on evaluating Arabic doxography, scholasticism and anti-Arabism during the Renaissance and the early modern periods in the West. It includes a useful bibliography.

Schmieder, Karl Christoph

Geschichte der Alchemie. Ulm/Donau, Germany, Arkava, 1959

See Chapter 3 for Arabic alchemy.

Schweinfurth, G.

Arabische Pflanzennamen aus Ägypten, Algerien und Jemen. Berlin, 1912

Shah, Mazhar Hussain

Constitution of Medicine. Lahor, Feroz, 1948

This 40-page essay suggests a reform of western medicine by including principles of what is known in India and Pakistan as the *Unani Tibb* adopted by Ibn Sīnā and following the Greco-Arabic system of the healing art. It includes a bibliography.

Shalaby, Ahmad

History of Muslim Education. Beirut, Lebanon, Dār al-Kashshāf, 1954

This book provides a substantial contribution to our knowledge on the subject. It is divided into five chapters together with a supplement and covers the period from the rise of Islam to the fall of the Ayyubid dynasty in Egypt, 1250. It includes a special chapter on medical education.

Shaṭṭī, Shawkat al-

Tārīkh al-Ṭibb. Damascus, Syrian University Press, 1960

Several discourses bound together in one volume presents valuable history of Arabic medicine especially during the Islamic period.

Al-Wajīz fī al-Islām wāl-Ṭibb, containing *Al-Lub fī al-Islām wāl-Ṭibb* and other treatises. Damascus, Syrian University, 1960

A useful and somewhat comprehensive discourses on Islam and medicine. Many chapters are printed in both works which need a more precise documentation and a complete index.

Shīrāzī, ‘Abd al-Raḥmān al-

Nihāyat al-Rutbah fī Ṭalab al-Ḥisbab.

It is very possible that al-Shīrāzī (d. 1193) wrote this work, of which several manuscripts are still extant, for Sultan Ṣalāḥ al-Dīn (Saladin) in Egypt. It is one of the earliest works on the duties and authorities of al-Muḥtasib, a government-authorized officer to guard against fraud, double-dealing, and deceit in business and the practice of professions such as those related to the health field and the various types of trade. This valuable document was edited by Albāz al-‘Arīnī (Cairo, 1946).

Shīrāzī, Najm al-Dīn Maḥmūd al-

al-Hāwī fī ‘Ilm al-Tadawī.

A comprehensive work on medical therapy completed about the end of the 13th century. The 5th treatise on pharmaceutical forms and the compounding of drugs was edited, translated, and commented upon with glossaries and a brief survey of formularies in Islam by Pierre P. E. Guigues, under the title *Le Livre de l’art du traitement* (Beirut, Lebanon, 1902).

Shirazy, Noureddeen M. Abdullah (compiler)

Ulfaz Udwiyyeh.

This alphabetically arranged materia medica in Arabic, Persian, and Hindu was edited with English translation by Francis Gladwin (Calcutta, 1793).

Sickenberger, E.

Die einfachen Arzneistoffe der Araber im 13. Jahrhundert christlicher Zeitrechnung. 2 vols., Vienna, 1893—1895

Siddiqi, Muḥammad Z.

Studies in Arabic and Persian Medical Literature. Calcutta, University Press, 1959

It is a useful general survey, but mainly based on secondary sources.

Sigerist, Henry E.

Grosse Aerzte. Leipzig, Lehmann, 1932, 2nd ed. 1954

This biographical history includes brief biographies of Abu Bakr al-Rāzī (Latin Rhazes), Ibn Sīnā (Latin Avicenna, d. 1037) and Constantine Africanus (ca. 1016—1087). It was translated into English by Eden and Cedar Paul (New York, Norton, 1933).

Siggel, Alfred

Arabisch-deutsches Wörterbuch der Stoffe aus den drei Naturreichen, die in arabischen alchemistischen Handschriften vorkommen, nebst Anhang: Verzeichnis chemischer Geräte. Berlin, Akademie, 1950

A lexicon issued as No. 1 of the series of publications by the Institut für Orientale Forschung of the Deutsch Akademie der Wissenschaften zu Berlin. It explains terminology for chemical apparatus, tools and measures, and plants, animals, and minerals known and utilized by alchemists during the medieval period.

Das Buch der Gifte des Gābir ibn Hayyān. Wiesbaden, 1958

Based on a unique Arabic manuscript ascribed to Jābir on poisons and their antidotes.

Decknamen in der arabischen alchemistischen Literatur. Berlin, 1951

On Arabic alchemical writings under assumed names, published by the *Deutsch Akad. der Wissenschaften zu Berlin, Institut für Orient. Forschung.*

Sīnā, Abū ‘Alī al-Ḥusayn ibn ‘Abd Allāh ibn

Al-Adwiyah al-Qalbiyyah.

Discourse on cardiac drugs. See S. H. Abdul Latif’s “Introduction to Heart Drugs,” in *Avicenna Commemoration Volume*,

edited by V. Courtois and published by the Iran Society, Calcutta, 1956, containing articles in several languages on the life and works of Ibn Sīnā. Abdul Latif's article is based on a study of the Arabic manuscript of this discourse in India and points to original contributions by the author.

Al-Qānūn fī al-Ṭibb.

This encyclopedia is the most comprehensive and famous of Ibn Sīnā's medical writings representing the final codification of Greco-Arabic thought on the healing art. It is divided into five books:

- I. On humors, anatomy, diseases and their treatment, and hygiene
- II. On materia medica, with simple drugs alphabetically arranged
- III. On the body's organs and diseases from head downward to the feet
- IV. On fevers, gout, poisons, and surgery
- V. On compounded drugs, therapeutics, and weights and measures

The influence of this encyclopedia on medicine in the West since its translation into Latin by Gerard of Cremona (12th century), through the 16th, and in the Middle East until modern times could hardly be overemphasized. It was printed together with *Kitāb al-Najāh* in one volume (Rome, 1593), and alone in 3 volumes (Cairo, Būlāq, 1294 A. H. [1877]). It was also printed in Iran and in India (Lucknow, 1905). Book I of *al-Qānūn* was translated with introduction and a commentary by Oskar C. Gruner, under the title *A Treatise on the Canon of Medicine of Avicenna* (London, Luzac, 1930). Here also Gruner discusses the theory and philosophy of medicine in Islam, cultural development prior and during the lifetime of Ibn Sīnā (980—1037), as well as the anatomy, scholastic psychology, dietetics, and other aspects of the *Qānūn*. The commentary, however, is not always reliable and the translation is rather poor. The section in the *Qānūn* on ophthalmology has been

translated with annotation by Julius Hirschberg and Julius Lippert, under the title *Die Augenheilkunde des Ibn Sina, aus dem Arabischen übersetzt und erläutert* (Leipzig, Veit, 1902) and by Elias Michailowsky, *Die Augenheilkunde des Avicenna* (Berlin, Eberino, 1900) in a 36 pages study including 1 plate. Then the materia medica of the Aqrābādīn (formulary) in Book V was translated by Joseph von Sontheimer, under the title *Zusammengesetzte Heilmittel der Araber nach dem fünften Buch des Canons von Ibn Sina aus dem Arabischen* (Freiburg, Herder, 1845). Recently, the Uzbek Academy of Sciences, section of Oriental Science, published a study under the title *Kanon Vrachebnoy nauki* (2 vols., Tashkent, 1954—1956), including the section on simple remedies and materia medica.

Al-Shifā.

On metaphysics, natural sciences, philosophy, and psychology (see *Avicenna's De Anima*, edited by F. Rahman, London, Oxford University, 1959). The *De Mineralibus* by Alfred of Sareshel (Anglicus, ca. 1215) is, however, partly a direct translation and partly a resume from Ibn Sinā's *al-Shifā* edited with an English translation from Arabic and with critical notes by Eric John Holmyard and Desmond C. Mandeville, under the title *Avicennae de congelatione et conglutinatione lapidum* (Paris, Geuthner, 1927). For additional bibliographical notes see H. Ley.

Al-Urjūzah fī al-Tibb.

This famous poem on general medicine, known as *Cantica Avicennae*, was edited by Henri Jahier and Abdelkader Noureddine with an introduction, annotation, and French translation, and including the 1556 Latin version (first made in the 13th century), under the French title *Poème de la médecine* (Paris, Société d'Édition les Belles Lettres, 1956). The two editors published also *Anthologie des textes poétiques attribués à Avicenne* (Algiers, Algeria, Librairie Ferraris, 1960); Publications de la Faculté Mixte de Médecine et de Pharmacie Univ. d'Alger. In English see translation by Haven C. Krueger, *Avicenna's Poem on Medicine*, Springfield, Ill., Thomas, 1963. For further information see Hermann Ley, *Avicenna*, Berlin, Anfan, 1953, an 84 pages essay including a bibliography.

Singer, Charles

The Earliest Chemical Industry. London, The Folio Society, 1948

An essay in the historical relations of economics and technology illustrated from the alum trade, with preface by Derek Spence. It includes alchemical writings in Greek and in Arabic and their transmission to the West (see in particular pp. 43—52).

Singer, Charles, Holmyard, E. J., Hall, A. R., and Williams, Trevor I.

A History of Technology. 5 vols., Oxford, Clarendon, 1954—1958

Of special interest to us is volume 2, 1956, which is devoted to the Mediterranean civilizations and the Middle Ages (c. 700 B. C. to c. 1500 A. D.).

Soubirau, André

Avicenne, Prince des médecins. Paris, Lipschutz, 1935

On the life of Ibn Sīnā and the influence of his medical teachings. Contributed by l'Etude de sa Vie et de Theresa doctrine.

Sprengel, Kurt P. J.

Beiträge zur Geschichte der Medicin. 1 vol. in 3 pts., Halle, 1794—1796. Includes pioneering discussions on Arabic medicine.

Geschichte der Chirurgie. 2 vols., Halle, Kümmel, 1805—1819. The second volume was written by the author's son, Wilhelm Sprengel, in 23 chapters.

Historia rei herbariae. 2 vols., Amsterdam, 1807—1808

Versuch einer pragmatischen Geschichte der Arzneikunde. 5 vols., Gebauer, Halle, 1792—1803; 3rd ed., 6 vols., in 7 parts, Vienna, 1837—1840

A monumental work of the 1800's which became a source of information to later historians of medicine. It was translated into French by A. J. L. Jourdain, under the title *Histoire de la médecine* (Paris, Imperiale, 1809), and revised by E. F. M. Bosquillon (9 vols., Paris, 1815—1832).

Sprenger, Aloys

De originibus medicinae arabicae sub Khalifatu.

Inaugural dissertation for the M. D. degree, Leiden, 1840

Stapleton, H. E.; Azo, R. F.; and Husain, M. Hidayat

"Chemistry in Iraq and Persia in the Tenth Century A. D." Calcutta, published from Memoirs of the Asiatic Society of Bengal, vol. 8, no. 6, 1927, pp. 317—418

The tenth century is one of the most fertile periods for cultural activity, including alchemy, in medieval Islam, as explained in this valuable essay, which I thought deserving of consideration as an independent contribution to alchemy in Islam. Al-Rāzī, his life and influence, and three of his works are discussed together with the section on alchemy in al-Khwārazmī's *Mafātīḥ al-'Ulūm*. See also Stapleton and Azo's article, "Alchemical Equipment in the Eleventh Century A. D.," *Ibid.*, vol. 1 (1905), pp. 47—70; and "An Alchemical Compilation of the Thirteenth Century A. D." *Ibid.* vol. 3 (1910), pp. 57—94.

Stapleton; Ḥusain; and 'Alī, M. Turāb

Three Arabic Treatises on Alchemy by Muḥammad bin 'Umail (10th Century A. D.) Calcutta, Mem. As. Soc. Bengal, no. 1, vol. 12 (1933), pp. 1—213. Discusses also the date of Ibn 'Umayl's writings and their importance. See also Stapleton's "The Antiquity of Alchemy," *Ambix*, 5, Nos. 1 and 2 (1953), pp. 1—43, wherein the author attempts to carry on the research by P. Kraus to find a solution to the problem of the origin of alchemy, and the possible inter-relation of the Chinese thought with that in Islam. He also discusses the treatise of Agathodaimon on alchemy.

Steinschneider, Moritz

Die arabischen Übersetzungen aus dem Griechischen. Originally published in various periodicals, then issued in 2 parts (Beihfte Centralbibliothek, 5 and 12), Leipzig, Harrasowitz, 1889—1893; and reprinted in Graz, Austria, Akademische Druck- und Verlagsanstalt, 1960

A valuable guide to Arabic translations from the Greek, especially in the 9th and 10th centuries. See also Steinschneider's articles, "Die Griechischen Ärzte in arabischen Übersetzungen Kritisch Biographie," *Virchow's Archiv*, 124 (1891), pp. 115 to 136, 268—296, and 455—487.

Die europäischen Übersetzungen aus dem Arabischen bis Mitte des 17. Jahrhunderts. 2 parts (149 and 151), Vienna, *Sitzungsberichte der Philosophisch-historischen Klasse, Akademie der Wissenschaften*, in Wien, 1904—1905, reprinted, Graz, Austria, Akademische Druck- und Verlagsanstalt, 1956

Contains a valuable list of transmitted works from the Arabic by known and anonymous translators as well as doubtful writings with a supplement and corrections in alphabetical order.

Zur pseudoepigraphischen Literatur, insbesondere der Geheimen Wissenschaften des Mittelalters. Berlin, Rosenthal, 1862

A valuable essay on occult sciences in medieval literature with bibliography.

Stillman, John Maxson

The Story of Early Chemistry. New York and London, Appleton, 1924

Contains a section on chemical knowledge of the Middle Ages. It was revised under the title *The Story of Alchemy and Early Chemistry* (New York, Dover Publication, 1960).

Sudhoff, Karl

Beiträge zur Geschichte der Chirurgie im Mittelalter. 2 vols., Leipzig, Studien zur Geschichte der Medizin. Hefen 10—12, 1914—1918

One of the best and most reliable works of its kind. It devotes a section to surgical development in Islam and reproduces a few illustrations of al-Zahrāwī's surgical instruments.

Ein Beitrag zur Geschichte der Anatomie im Mittelalter, speziell anatomischer Graphik nach Handschriften des 9. bis 15. Jahrhunderts. Leipzig, Studien zur Geschichte der Medizin, Heft 4, 1908.

A useful work with illustrations and plates. It devotes more attention to the Latin West.

Sudhoff, Karl et al.

Mitteilungen zur Geschichte der Medizin und der Naturwissenschaften (adding, *und der Technik*, from vol. 31). Vols. 1—40, Leipzig, 1902—1943

This is one of the most comprehensive undertakings in the history of sciences up to the end of the first half of the present century.

Ṣudqī, Maḥmūd

Al-Ṭibb fī Ayyām al-‘Arab wa-Qawānīn al-Ṣiḥḥah ‘ind al-Muslimīn. Cairo, 1910

It stresses the contributions of medieval Arabic medicine and the advantages of Islamic religious practices to promote public health.

Surcouf, J.

Plantes médicinales et remèdes utilisés par les arabes. Paris, 1914.
A brief essay of 12 pages.

Suter, Heinrich

Die Araber als Vermittler der Wissenschaften in ihrem Übergang vom Orient in das Occident. 2nd ed., Leipzig, Aaran, 1897

Die Mathematiker und Astronomen der Araber und ihre Werke. Leipzig, 1900

Published in the series *Abhandlungen zur Geschichte der Mathematischen Wissenschaften mit Einschluß ihrer Anwendungen*. It contains bio-bibliographies of several medical men who were known astronomers or mathematicians as well.

Suyūṭī, Jalāl al-Dīn ‘Abd al-Raḥmān al-

al-Ṭibb al-Nabawī (or *Ṭibb al-Nabī*).

There are about seven different versions under this title to purport views of the prophet of Islam on medical treatment

and the healing art in general. The one attributed to al-Suyūṭī of Egypt (d. 1505), which was also ascribed to Shams al-Dīn Muḥammad ibn Aḥmad al Dhahabī [1274—1347], consists of three sections: 1. Medical aphorisms and hygienic regulations, 2. Diet and drugs, 3. Treatment of diseases. For further discussion see Cyril Elgood, "The Medicine of the Prophet," *Medical History*, 6 (1962), pp. 146—153. This compendium was published in Cairo, Būlāq, (ca. 1870), and was translated into French by N. Perron under the title *La Médecine du Prophète* (Paris, Bailliere, 1860). See also the recent edition with introduction and annotation by 'Abd al-Ghanī 'Abd al-Khāliq, *al-Ṭibb al-Nabawī*, Cairo, Ḥalabī, 1957, wherein the work is attributed to Shams al-Dīn Muḥammad ibn Abī Bakr ibn Q. al-Jawziyyah. Furthermore see Cyril Elgood, "Ṭibb-ul-Nabbi or Medicine of the Prophet," *Osiris*, 14 (1962), 33—192.

Tabanelli, Mario

Albucasi, un chirurgo arabo dell'alto medio evo. La sua epoca, la sua vita, la sua opera. Florence, Olschki, 1961

This book on al-Zahrāwī (d. ca. 1013) and his surgical treatise was published as volume IX by the Biblioteca della Rivista di storia delle Scienze Mediche e Naturali. The technical discussion seems useful but the historical survey contains many errors.

Ṭabarī, 'Alī ibn Sahl Rabbān al-

Firdaws al-Hikmah.

This medical encyclopedia in 360 chapters (completed about 850) is one of the earliest of its kind in Islam. Beside reference to Indian drug therapy, the author relied heavily on works translated from the Greek. For further detail see Alfred Siggel, *Die propädeutischen Kapitel aus dem Paradies der Weisheit über die Medizin des Alī b. Sahl Rabban at-Ṭabarī* (Wiesbaden, Steiner, 1953), including an introduction, a biography of al-Ṭabarī, and a translation of his medico-philosophical principles; and Siggel's translation and comment on the first 34 chapters of *Firdaws* under the title *Die indischen Bücher aus dem Paradies*

der Weisheit über die Medizin des Ali b. Sahl Rabban at-Ṭabarī (Wiesbaden, Steiner, [1952]). Both works by Siggel were published as nos. 14 and 8 of the *Abhandlungen der Geistes- und Sozialwissenschaftlichen Klasse*, Akademie der Wissenschaften und der Literatur. Ṭabarī's *Firdaws* was edited with introduction and notes by Muḥammad Z. Ṣiddiqī and published by the Gibb Memorial Trust (Berlin, 1928). It was commented upon in a scholarly manner by Max Meyerhof "'Ali at-Ṭabarī's 'Paradise of Wisdom', One of the Oldest Arabic Compendiums of Medicine," *Isis*, 16 (1931), pp. 6—54.

Täckholm, Viva and Gunnar

Flora of Egypt. 3 vols., Cairo, 1941—1954

This monumental work on the subject was published under the auspices of the Anglo-Egyptian Bookshop of Cairo.

Tatawi, Mohyi el-Din el-

Der Lungenkreislauf nach el-Ko Raschi.

Inaugural dissertation presented to the medical faculty of Albert Ludwigs Universität at Freiburg im Breisgau, Germany, 1924.

This 15-page thesis, including 6 pages of the Berlin Arabic manuscript of *Sharḥ Taṣḥrīḥ al-Qānūn*, by Abū al-'Alā' ibn al-Nafīs (d. 1288), was the first modern essay to attribute the discovery of the pulmonary circulation to the 13th-century Muslim physician. The dissertation was made known through several articles by Max Meyerhof; e. g. "Ibn An-Nafīs (XIIIth cent.) and His Theory of the Lesser Circulation," *Isis*, 23 (1935), pp. 100—120. See also E. Edward Bittar, "A Study of Ibn Nafīs," *Bulletin of the History of Medicine*, 29 (1955), pp. 352—368; and pp. 429—447; and Edward D. Coppola, "The Discovery of the Pulmonary Circulation: A New Approach," *Bull. Hist. Med.*, 31 (1957), pp. 44—77.

Taton, René (editor)

Histoire générale des sciences. 3 vols., Paris, Universitaires de France, Presses Universitaires de France, 1957—1961

Of particular interest is Volume 1, 1957, *La Science antique et médiévale (de origines à 1450)*, pp. 43—471.

Taylor, F. Sherwood

The Alchemists. New York, Schumann, 1949

In the chapter on Islamic alchemy, Taylor states that “The Nestorian and Monophysites, exiled from Byzantium, were acquainted with the alchemical doctrines (in Greek writings) and carried these through Syria and Persia, 450—700 A. D.”

Thomson, Thomas

The History of Chemistry. 2 vols., London, 1830—1831

A pioneering scholarly work on the topic in English.

Thorndike, Lynn

The History of Magic and Experimental Science. 8 vols., New York, Columbia Univ. Press, 1923—1958 (the first two editions of Vols. I and II published by Macmillan Co., New York).

The scope of this remarkable work is as follows:

Vol. I, 1st ed., 1923 (4th printing, 1947) includes the Roman period up to the 13th century.

Vol. II, 1st ed., 1923 (4th printing, 1947) discusses the 12th and 13th centuries.

Vols. III and IV (1934—1953) are on the 14th and 15th centuries.

The remaining vols. are on the 16th and 17th centuries.

Töply, R. R. von

Studien zur Geschichte der Anatomie im Mittelalter. Leipzig, 1898

Includes the Islamic period.

Tschirch, Alexander

Handbuch der Pharmakognosie. 3 vols., Leipzig, 1909—1933 (2nd. ed. completed).

Deals with the characteristics of crude drugs, their history, production, collection, preservation, and use from ancient

times to the first decade of the present century. It is probably the best of its kind as a scientific textbook treating the historical aspects of pharmacognosy, including the Arabic period.

Ṭulayṭulī, Šāʿid ibn Aḥmad ibn Šāʿid al-Andalusī al-

Ṭabaqāt al-Umam.

The author (1027—1070), a famous judge of Toledo, Spain, under the Islamic rule (hence his nickname al-Andalusī al-Ṭulayṭulī), was likewise a competent historian. His *Ṭabaqāt* gives a brief survey of cultural developments of many civilizations, especially the Greek, and how the scientific legacy of the latter was transferred to Arabic. Then he followed with the biographies of learned men in Islam, especially those of his native country. Later historians such as al-Qiftī, Uṣaybiʿah, Bar Hebraeus, and al-Maqqarī quoted him repeatedly. For example, his biography of the alchemist Jābir ibn Ḥayyān was copied verbatim by al-Qiftī. He attacks al-Kindī (d. ca. 873) for discrediting the claims of alchemists to transfer lesser metals into gold and silver. In a knowledgeable manner he also describes the early development of medical activities under the Eastern caliphate and how this influenced Moorish Spain. The first famous Muslim physician in Spain, he reports, was the ninth-century Aḥmad ibn Iyās of Cordova.

This work was edited by Louis Cheikho, Beirut, Catholic Jesuit Press, 1912; and in Cairo (n.d.) by Muḥammad Abū Ṭālib. It was translated with notes and indices by R. Balchere, under the title *Des Categories des nations* (Paris, 1935).

Ukhuwwah, Muḥammad ibn Aḥmad ibn al-

Maʿālim al-Qurbah fī Ahkām al-Ḥisbah.

A guide to the “muḥtasib” who is the state or city official to enforce the law and execute punishment on those who violate the ethics and regulations of their trade or profession. He also reminds those concerned of their obligations to their community so that they will not abuse privileges guaranteed by the state. Here Ukhuwwah (d. 1329) reports regulations that likewise govern the medical professions. In much of his data, the

author is indebted to earlier works such as *Nihāyat al-Rutbah fī ṭalab al-Ḥisbah*, by ‘Abd al-Raḥmān al-Shīrāzī (d. 1193). The *Ma‘ālim* was edited with abstract of contents, glossary, and indices by Reuben Levy, Gibb Memorial Series (London, Luzac, 1938) printed by the Cambridge University Press, England.

Underwood, E. Ashworth (editor)

Science, Medicine and History. Essays on the evolution of scientific thought and medical practice written in honour of Charles Singer. 2 vols., London, Oxford Univ., 1953

Volume I contains several articles related to the Islamic period.

Ünver, Ahmet Süheyl

The Origins of History of Turkish Medicine. Istanbul, 1958

This well illustrated booklet is published as No. 53, University of Istanbul, Institute of History of Medicine.

Ünver, Ahmet Süheyl (editor)

İbni Sina, Hayatı Ve eserleri hakkında Çalışmalar. Istanbul, Erenler Matbaası, 1955

Collection of articles on the life and works of Ibn Sina (980—1037) in several languages.

Uṣaybi‘ah, Aḥmad ibn al-Qāsim ibn Abī

‘Uyūn al-Anbā‘ fī Ṭabaqāt al-Aṭibbā‘.

This invaluable bio-bibliography is the most comprehensive outline on the history of medicine in Islam written during this period of our interest. It discusses the origin of the healing art and gives the Islamic point of view on the rise and early development of Greek medicine and the Alexandrian school. Then it includes about 400 entries of physicians and learned men in Islam. Uṣaybi‘ah (b. in Damascus, c. 1194, d. in Sarkhad, Syria, 1270) reports manuscripts of works he saw, his acquaintance with teachers, colleagues, and students in the health field, and his personal observations and findings from hearsays.

It was edited by August Müller (2 vols., Cairo, Wahabiyyah, 1299 A. H. [1882]). This edition was reprinted in 3 volumes (5 parts), Beirut, Dār al-Fikr, 1955—1956, but unfortunately without any attempt to add a complete index or consult existing editions or manuscripts for corrections.

August Müller republished the same text with 162 additional pages including a preface in German, a list of corrections, and a complete index (2 vols., Königsberg, 1884).

Section 13 was edited with translation and annotations by Henri Jahier and A. Noureddine, under the title *Médecins de l'Occident Musulman* (Alger, Algeria, 1958). Also, Hamed Waly wrote a doctoral dissertation entitled *Drei Kapitel aus der Aerztegeschichte des Ibn Abū Uṣaibi'a* (Berlin, 1910).

Valensi, Robert

Albucasis, un chirurgien arabe au moyen âge. Montpellier, 1908

Presents a brief survey of the medical development in Islam, then comments on al-Zahrāwī's writings, particularly the surgical treatise.

Vaux, Roland de

Notes et textes sur l'Avicennisme Latin aux confins des XII^e—XIII^e siècles. Paris, Vrin, 1934

Shows influence of Ibn Sīnā's writings in the two early centuries of his introduction to the West.

Wāfid, Abū al-Muṭarrif 'Abd al-Raḥmān ibn Muḥammad ibn Al-Adwiyah al-Mufradah

This materia medica of Ibn Wāfid (999—1068) was influenced by that of Dioscorides with addition and valuable suggestion regarding drug therapy. It was edited with an introduction and annotations by Luis de Saint-German Fardaudo under the title *El Libro de medicinas particulares* (Barcelona, 1943).

Tadqīq al-Naẓar fī 'Ilal Ḥāssat al-Baṣar

This essay on the diseases of the eye was commented upon by Julius Hirschberg, et al., in *Die arabischen Lehrbücher der Augenheilkunde* (Berlin, Abhand. Preuss. Akad., 1905).

Waheed, Abdul-Karim

The Islamic Background of Modern Science. Lahore, 1364 A.H. (1945)

Mentions the spread of schools and learning in Islamic lands and a survey of advances in medicine, alchemy and other sciences which the author defines as “the ordered knowledge of natural phenomena and the relation between them.” For further detail see Richard Walzer, “Arabic Transmission of Greek Thought to Medieval Europe,” *Bulletin of the John Rylands Library*, vol. 29 (Manchester, Eng., 1945), pp. 160—183.

Wickens, G. M. (editor)

Avicenna: Scientist and Philosopher. A Millenary Symposium. London, Luzac, 1952

Compilation of several useful articles on the life and writings of Ibn Sinā (980—1037), and his influence on the Medieval scientific tradition.

Wiedemann, Eilhard

Beiträge zur Geschichte der Naturwissenschaften. 69 treatises, Erlangen, Sitz.-ber. der Physikalische-medizinischen Societat in Erlangen, 1904—1929

A comprehensive undertaking which includes treatises related to the Islamic contribution. For example see *Zur Chemie bei den Araber* (No. XXIV, Erlangen, 1911).

Über die Naturwissenschaften bei den Arabern. Series 2, vol. 5, Hamburg. Sammlung gemeinverständlicher Wissenschaftlichen Vorträge, 1890

Zur Alchemie bei den Arabern. Heft V, Erlangen, Abhand. z. Gesch. d. Naturwissen u. d. Med., 1922

For a more complete bio-bibliography of this great scholar and historian of science (1852—1928), see H. J. Seemann, “Eilhard Wiedemann,” *Isis*, 14 (1930), pp. 166—186.

Winter, Henry J. J.

Eastern Science: An Outline of Its Scope and Contribution. London, Murray, 1952



Figure 5. The 30th treatise of *al-Taṣrif*, by Abū al-Qāsim al-Zahrāwī (Abulcasis) contains beautiful illustrations of the surgical instruments he used, devised, or recommended as shown in this page. Courtesy of the Khuda Bakhsh Oriental Public Library, Patna, Bihar, India.

Published in the Wisdom of the East Series, the text is poorly documented, inconsistent, and brings no original ideas on the subject.

The Life and Thought of Avicenna, Abū ‘Alī al-Ḥusain ibn ‘Abdallāh ibn Sīnā (980—1037 A. D.). Basavangudi, Indian Institute of Culture, transaction No. 12, 1952

A 14-page essay.

Withington, Edward W.

Medical History from the Earliest Times. London, Scientific Press, 1894

Includes the Islamic period.

Wüstenfeld, Ferdinand

Geschichte der arabischen Aerzte und Naturforscher. Göttingen, Vandenhoeck u. Ruprecht, 1840

This small work is still invaluable for research on medieval medicine in Islam. Physicians are mentioned chronologically according to periods: 1—150 A. H., 150—300 A. H., and 300—450 etc.

Die Geschichtsschreiber der Araber und ihre Werke. Göttingen, 1882

Zahrāwī, Abā al-Qāsim Khalaf ibn Abbās al-

Al-Taṣrīf Liman ‘Ajiza ‘an al-Tā’līf

This medical encyclopedia (completed about 1000) consists of 30 treatises. See my doctoral dissertation *Some Pharmaceutical Aspects of al-Zahravi’s al-Tasreef, About A. D. 1000* (Madison, University of Wisconsin, 1959). It was published in cooperation with Prof. Glenn Sonnedecker, Leiden, Brill, 1963. The last treatise on surgery was edited with Latin translation by Johannis Channing with introduction by Michael Casiri, under the title *Abulcasis de Chirurgia, Arabice et Latine* (2 vols., Oxford, Clarendon, 1778). A much better translation in French with a valuable introduction was made by Lucien Leclerc, under the title *La Chirurgie d’Abulcasis* (Paris, 1961).

Zajačakowski, Ananiasz (editor)

Awicenna, Abu Ali ibn Sina, prace Zbiorowa. Warsaw, Państwowe Wydawn Naukowe, 1953

On the life and works of Ibn Sina.

Zaydān, Jurjī

Tāriḫ al-Tamaddun al-Islāmī. 5 vols., Cairo, al-Hilāl, 1902—1906; 2nd ed., 1919; 5th ed., 1956—1958

A comprehensive and reliable history of Islamic civilization by Zaydān (1861—1914), the greatest historian in the Arab world from the time of Ibn Khaldun (d. 1406) until the first quarter of the present century.

Zeitlin, Solomon

Maimonides: A Biography. New York, Bloch, 1st. ed. 1935, 2nd ed. 1955

For further information see Maymūn, Mūsā ben.

Zimmermann, Leo M., and Veith, Ilza

Great Ideas in the History of Surgery. London, Baillière, Tindall and Cox; and Baltimore, Md., 1961

This well illustrated volume presents in chronological order, surgical progress from ancient times to the 20th century in 9 sections. Each contains accounts of the particular period and the leading figures involved with extracts from their writings. The second section discusses the development of the surgery in Islam with mention to the surgical treatise of Abulcasis al-Zahrāwī (d. ca. 1013). It includes a useful bibliography.

Zuhr, Abū Marwān ‘Abd al-Malik ibn

Al-Tadhkirah (or *Fī al-Waṣāyā al-Ṣiḥbiyyah*).

Ibn Zuhr (d. 1162) stands as one of the great physicians in 12th-century Moorish Spain who opposed astrology and mysticism in medical practice. His wide knowledge concerning

the use of drugs and diet in treatment is evident in this work which has been translated with introduction and notes by Gabriel Colin under the title *Avenzoar, sa vie et ses oeuvres* (Paris, 1911), Publication de l'École de Lettres Alger.

II

Relevant and Useful Books on the History of Islamic Civilization

Abbār, Abū ‘Abd Allāh Muḥammad ibn al-

Al-Takmilah Li-Kitāb al-Ṣilah; or Takmilat al-Ṣilah

Ibn al-Abbār (1199—1260) continued in this bio-bibliography of the learned men in Moorish Spain what had been started by Ibn Bashkuwāl in *al-Ṣilah*, completed in 1139. It was edited with indices by Franciscus Codera in the series *Biblioteca arabico-hispana* (2 vols., Madrid, 1887—1889), and by ‘Izzat A. al-Ḥusaynī (2 vols., Maktab Nashr al-Thaqāfah al-Islāmiyyah, al-Sa‘adah Press, 1955—1956).

Abd-el-Jalil, Jean Mohammed

Brève histoire de la littérature arabe. Paris, 1943

Gives a brief survey of Arabic contribution to literature, philosophy, and the sciences, and includes a short bibliography. It was revised under the title *Histoire de la Littérature arabe* (Paris, Maisonneuve, 1960).

Abulfeda, see Fidā, ‘Imād al-Dīn Ismā‘īl ibn ‘Alī Abū al-

‘Alī, Muḥammad, Kurd

Al-Islam wāl-Ḥaḍārah al-‘Arabīyyah. 2nd ed., Cairo, 1950

Emphasizes Sociopolitical life in the medieval Islamic states.

Ali, Syed Ameer

A Short History of the Saracens. 1st ed., London, 1916; 2nd ed., 1929

A general history with religious and socio-political emphasis.

Amari, Michele

Storia dei Musulmani di Sicilia. 3 vols., 2nd ed. Catania, 1933—1939

A comprehensive history of Arabic rule in Sicily and the transmission of Islamic legacy through this island to Italy and Western Europe.

Amin, Aḥmad

Ḍuḥā al-Islām. 3 parts, Cairo, 4th ed., 1946—1949

Discusses social, religious, political, and cultural life under the Abbasid dynasty up to the first quarter of the 10th century. This detailed account follows the author's work, *Fajr al-Islām* (6th ed. Cairo, 1950) on the rise and expansion of Islam up to the fall of the Umayyad dynasty in 750.

Zuhr al-Islām. 4 parts, Cairo, 1945—1955

Discusses the social, religious, economic, and cultural life in the 10th and early 11th centuries throughout the Islamic world.

Anonymous author(s)

Arabian Nights (Alf Laylah wa-Laylah).

The One Thousand and One Nights was published in several editions in India, Egypt, Syria, and Lebanon, and was translated into numerous languages. The Arabian Nights contains several references and anecdotes related to the use of drugs and the medical practice. An early excellent edition was printed in 2 vols., Cairo, Būlāq, 1251 A. H. (1835/6), and it has been revised by Muḥammad 'Abd al-Raḥmān (4 parts, Cairo, Būlāq, 1279/80 A. H.). Two other editions were also published by Anṭūn Ṣaliḥānī (5 parts, Beirut, Catholic Press, 1888—1890); and by William H. Macnaghten (4 vols., Calcutta, 1839—1842). In English, a good translation following that of John Payne (9 vols., London, 1882—1884) was superseded by that of Richard F. Burton with useful introduction and notes (16 vols., London, 1885—1888). In French it was first translated by A. Galland (12 vols., Paris, 1704—1717). This Paris version descends from another recension than that of the Būlāq, Cairo, edition.

Arberry, Arthur J. (editor)

The Legacy of Persia, Oxford, Eng., Clarendon, 1953

This valuable compilation of papers by various authors includes chapters on Persia during the medieval period and enumerates contributions to medical and allied sciences. See in particular the two articles, "Persia and the Arabs," by R. Levy, and "Persian Science," by Cyril Elgood.

Arbuthnot, Forster Fitzgerald

Arabic Authors: A Manual of Arabian History and Literature. London, Heinemann, 1890

Armānīus, 'Azār

Al-Mudbakkarah al-Lughawīyyah. Cairo, al-Miṣriyyah Press, 1920

Thesaurus of materia medica including the three kingdoms, animal, mineral, and vegetable, in Arabic, English, and French.

Arnold, Thomas Walker

The Caliphate. Oxford, Eng., The Clarendon Press, 1924

A general history of the Arabic Empire.

Artz, Frederick B.

The Mind of the Middle Ages, A. D. 200—1500, An Historical Survey, 2nd ed., New York, Knopf, 1954

Although it is mainly concerned with peoples of the West (200—1500), this book presents a very interesting chapter on Islamic civilization, its nature, and its contributions to education, philosophy, literature, and science.

Athīr, 'Izz al-Dīn 'Alī ibn Muḥammad ibn al-

Al-Kāmil fī al-Tārīkh. Known also as *Tārīkh al-Kāmil*

Ibn al-Athīr (1160—1233) of Iraq summarizes the history of al-Ṭabarī (d. 923) and continues Islamic chronicles to the year 1231. *Al-Kāmil* was published first in Cairo, Būlāq, 1274 A. H. (1858), then in 12 vols. Cairo, 1303 A. H. (1886), an edition that contained *Murūj al-Dhahab* of al-Mas'ūdī in the margin.

Again it was published in 9 volumes in Cairo, al-Muniriyyah, 1348—1354 A. H. (1929—1935). It was also edited in 12 volumes in Leiden, Brill, 1851—1871; Carlos J. Tornberg added volumes 13—14 (Leiden, 1874—1876) containing complete indices and useful notes.

Atiyah, Edward

The Arabs. Edinburgh, A Pelican Book, 1955

Useful historical survey.

Baghdādī, Aḥmad ibn ‘Alī al-Khaṭīb al-

Tārīkh Baghdād, Madīnat al-Salām

A description of the capital of the Arabian Nights from its foundation in the early 760's to 1061, the year in which the author died. This work was published in 14 parts, Cairo, Sa'adah Press, 1932. See also Guy Le Strange, *Baghdād during the Abbasid Caliphate* (1st ed., Oxford, 1900, rev. ed., 1924), which is based mainly on contemporary Arabic and Persian sources. See also the *Introduction topographique à l'histoire de Bagdad* (Paris, 1904), by G. Salmon.

Bakrī, Abū ‘Ubayd ‘Abd Allāh ibn ‘Abd al-‘Azīz al-

Al-Masālik wāl-Mamālik

This voluminous work, which has survived only in part, is the best known of the writings of al-Bakrī (1040—1094), the most distinguished geographer in 11th-century Spain. Written in the form of an itinerary, it describes the flora and fauna of various countries, wherein the author travelled. A fragment of *al-Masālik*, dealing with the Russians and the Slavs, is edited in Russian by G. Kunik and Victor Rosen (St. Petersburg, 1878). The section on North Africa was edited by MacGuckin de Slane (2nd rev. ed., Paris, 1911).

Mu‘jam mā Ista‘jam min Asmā’ al-Bilād wāl-Mawāḍi‘

Alphabetical geographic dictionary of Islamic countries, edited by F. Wüstenfeld (2 vols., Göttingen and Paris, 1876—1877). A second improved edition was made by Muṣṭafā al-Saqqā (2 vols., Cairo, 1945—1947).

Balādhurī, Aḥmad ibn Yaḥyā al-

Ansāb al-Ashrāf

Geneologies of rulers and noble men in Islam up to the 9th century. A part of this detailed history was edited by W. Ahlwardt (Greifswald, 1883), then edited with annotations by M. Schloessinger and S. D. F. Gotein (5 vols., Leiden, Brill, 1936—1940), and in part by Muḥammad Ḥamīd Allāh (vol. 1, Cairo, 1959).

Futūḥ al-Buldān

On Arabic conquest and the origin of the Islamic empire. The *Futūḥ* was edited by M. J. de Goeje (3 vols., Leiden, Brill, 1863—1868) and translated into English by Philip K. Hitti (New York, Columbia University, 1916). See also the doctoral dissertation by Francis Clark Murgotter (New York, Columbia Univ., 1924).

Bashkūwāl, Khalaf ibn ‘Abd al-Malik ibn Mas‘ūd ibn

Al-Ṣilah

This bio-bibliography of eminent and learned men in Moorish Spain, completed about 1140, supplements *Tārīkh ‘Ulamā al-Andalus* of Ibn al-Faraḍī (d. 1013). The *Ṣilah* was edited by Franciscus Codera and Julian Ribera in the ten volumes series, *Biblioteca arabico-hispana* (2 vols., Madrid and Zaragoza, 1882—1883). Also edited by ‘Izzat al-‘Aṭṭār al Ḥusaynī (2 vols., Cario, Maktab Nashr al-Thaqāfah al-Islāmiyyah, al Khānjī, 1955).

Baṭṭūṭah, Abū ‘Abd Allāh Muḥammad ibn

Tuḥfat al-Nuḡḡār fī Gharā’ib al-Amṣār wa-‘Ajāib al-Asfār

In describing his travels and the peoples and places he saw, Ibn Baṭṭūṭah (1304—1375) brings in very useful data on hospitals, schools, and cultural activities of his day. This work was edited in 2 volumes, Cario, Wādī al-Nīl, 1288 A. H. (1872/3); 2 vols., Cairo, al-Khayriyyah, 1904; and 2 vols., Cairo, al-Maktabah al-Tujariyyah al-Kubrā, 1958. It was edited and translated by G. Defremery and B. R. Sanguinetti, under the title *Voyages d’Ibn Batoutah* (4 vols., Paris, 1854—1874). An

abridged English translation was made from the Arabic text of the later Paris edition with an introduction and notes by Hamilton A. R. Gibb under the title *The Travels of Ibn Battuta in Asia and Africa*, 1325—1354 (2 vols., Cambridge, Eng., Hakluyt Society, 1929, revised in 2 vols., 1958—1962). For further detail see H. F. Janssens, *Ibn Batouta, la voyageur de l'Islam*, 1304—1369 (Brussels, Collection Lebeque, 1948), and for the travels in India, Maldiv Islands, and Ceylon see Mahdi Husain (Baroda, India, 1953).

Becker, Carl Heinrich

Vom Werden und Wesen der islamischen Welt. Islam-Studien. 2 vols., Leipzig, 1924—1932

Birūnī, Abū al-Rayḥān Muḥammad al-

Fī Taḥqīq Maʿālim al-Hind

This work describes the land and culture of India in al-Birūnī's time (973—1048). It was edited by the Osmania Oriental Publication Bureau (2 vols., Hyderabad, India, 1957—1958), and translated into English by Edward C. Sachau under the title *Alberuni's India* (2 vols., London, Trubner, 1887, reprinted, 1910). For further detail see T. I. Rainow, *Wielkije Uczenyje Usbecistana*, IX—XI bb (Tashkent, Ousphan, 1943), and Jan Z. Wilczynski's article "On the Presumed Darwinism of Alberuni, Eight Hundred Years Before Darwin," *Isis*, 50 (1959), pp. 459—466.

Blachère, Régis

Histoire de la littérature arabe des origines à la fin du XV^e siècle de J.-C. Paris, Maisonneuve, 1952

Includes selective bibliography.

Brockelmann, Carl

Geschichte der islamischen Völker und Staaten. Munich and Berlin, Oldenbourg, 1939; 2nd ed. Munich and Berlin, Oldenbourg, 1943

The original German text is of more importance to our subject than the enlarged English version by Joel Carmichael

and Moshe Perlmann (New York, 1947), or the Capricorn Books edition (New York, Putman, 1960), under the title *History of the Islamic Peoples*.

Caetani, Leone

Annali dell' Islam. Vols. I—VIII, Milan, 1905—1918, and vols. IX—X, Rome, Ulrico Hoepli, 1926

This monumental and comprehensive religious and socio-political history of the Islamic people and their culture during the Middle Ages, follows the chronological order adopted in most Arabic annals written in that period. It starts with the first years after Hijrah on and brings reliable and useful information to the student of Arabic civilization.

Carra de Vaux, Bernard

Les Penseurs de l' Islam. 5 vols., Paris, Geuthner, 1921—1926

Covers a wide range of topics on Islamic culture, history, and religion.

Chevalier, Ulysse

Répertoire des sources historiques du moyen âge. Rev. and augmented ed., 2 vols. (4 parts), Paris, 1894—1907; also reprinted in 3 vols., 1959

A bio-bibliography and a topo-bibliography arranged alphabetically and covering the period from the beginning of the Christian era to 1500.

Coke, Richard

The Arab's Place in the Sun. London, [1929]

Baghdad: The City of Peace. London, Butterworth, 1927

Illustrated and includes a bibliography.

Conde, José Antonio

Historia de la dominación de los árabes in España. 3 vols., Madrid, García, 1820—1821; reprinted, 1874

This is the first remarkable and complete history of Moorish Spain from 711 to 1492 in a Western language drawn entirely from Arabic sources. It was translated into English by Mrs. Jonathan Foster (3 vols., London, 1854—1855).

Coppée, Henry

History of the Conquest of Spain by the Arab Moors; with a Sketch of the Civilization which they achieved and Imported to Europe. 2 vols., Boston, Mass., 1881.

Volume 2 discusses medical and chemical development.

Ḍabbī, Abū Jaʿfar Aḥmad ibn Yaḥyā al-

Bughyat al-Multamis fī Tārīkh Rjāl Aḥl al-Andalus

Al-Ḍabbī (d. 1203) wrote this valuable biographical guide of learned men in Muslim Spain during his stay in Murcia. It was edited by Franciscus Codera and Julian Ribera in the ten volumes series, *Biblioteca arabico-hispana* (2 vols., Madrid, 1884—1885).

Dagher, Joseph A.

Maṣādir al-Dirāsah al-ʿArabiyyah (Elements de bio-bibliographie de la littérature arabe). Vol. 1, Sidon, Lebanon, 1950

A useful bio-bibliography of eminent figures from the pre-Hijrah and Islamic periods who contributed towards its cultural progress.

Guide de bibliothèques du moyen-orient. Harissa, Lebanon, 1950

A very useful catalogue especially of libraries in the Arab countries of the Near East.

DeBoer, T. J.

The History of Philosophy in Islam. London, 1933

Dhahabī, Shams al-Dīn Muḥammad ibn Aḥmad ibn ʿUth-mān al-

Ḍuwal al-Islām

A useful general history on the Islamic states up to the year 715 A. H. (1315). It was supplemented by al-Sakhāwī up to the year 744 A. H., and edited by the Osmania Oriental Publications

Bureau (2 vols., Hyderabad, India, 1333—1337 A. H. [1915—1919]).

Miẓān al-I'tidāl fī Naqd (Tarājim) al-Riṣāl

Critical biography of famous men in Islam, published in 3 volumes, Cairo, 1325 A. H. (1907).

Tārīkh al-Islām wa-Ṭabaqāt al-Mashāhīr al-A'lām

Another comprehensive biography of learned men including physicians in Islam, published in 2 volumes (4 parts). Cairo, al-Qudsī, 1367 A. H. To Dhahabī (1274—1348) also is attributed the *Ṭibb al-Nabawī (Medicine of the Prophet)*. See Suyūṭī, Jālal al-Dīn.

Dierck, Gustav

Die Araber im Mittelalter und ihr Einfluß auf die Cultur Europas. 2nd ed., Leipzig, Wigard, 1882

Die arabische Cultur im mittelalterlichen Spanien. Hamburg, 1887

Dinawāri, Abū Ḥanīfah Aḥmad ibn Dawūd al-

Al-Akbbār al-Ṭiwāl

A universal history up to the author's time (d. 895). It was edited by Vladimir Guirgass (Leiden, Brill, 1888), also edited and translated by Ignace Kratchkovsky (2 vols., Leiden, Brill, 1912).

Dozy, Reinhart P. A.

Histoire des Musulmans d'Espagne, 711—1110. 1st ed., 4 vols., Leiden, Brill, 1861; 2nd ed., rev., 4 pts. in 2 vols., Leiden, 1932

A socio-political history of Spain from the time of its conquest by the Arabs until the rise of the Murabiṭs in 1110; not documented. It was translated (not in its entirety) into English by Francis G. Stokes (1 volume, New York, 1913).

Durant, Will

The Age of Faith. A List of Medieval Civilization, Christian, Islamic, and Judaic, from Constantine to Dante (325—1300). New York, Simon and Schuster, 1950.

Fahmi, Abdel -Raḥman

Early Islamic Coin Weights. Cairo, 1957, published for the Museum of the Islamic Art of Cairo.

Useful for comparison of weights employed in the preparation of drugs.

Fāris, Nabih A. (editor)

The Arab Heritage. Princeton, N. J., 1944

A variety of essays on the legacy of Islam.

Farrūkh, ‘Umar A.

‘Abqariyyat al-‘Arab fī al-‘Ilm wāl-Falsafah. 2nd ed., Beirut, 1952

Translated into English by J. B. Hardie, under the title *The Arab Genius in Science and Philosophy* (Washington, D. C., 1954).

Fātik, Abū al-Wafā al-Mubashshir ibn

Mukhtār al-Ḥikam wa-Maḥāsin al-Kalim

A selected biography of Greek philosophers whose writings influenced Islamic culture, completed in 1053/4. This work was edited with a valuable introduction and notes by ‘Abd al-Raḥmān al-Badawī (Madrid, Instituto Egipcio de Estudios Islamicos, 1958).

Fidā, ‘Imād al-Dīn Ismā‘il ibn ‘Alī Abū al-

Al-Mukhtaṣar fī Akhbār al-Bashar

A summary of world history, including ancient and Islamic chronicles up to the year 1321/2. The author was greatly influenced by Ibn al-Athīr’s *Kāmil* written a century earlier. This work was published in 2 volumes (4 parts), Istanbul, Shāhāniyyah Press, 1286 A. H. (1870), also in 4 volumes, with the supplement by ‘Umar ibn al-Wardī up to the year 1348 under the title *Tatimmat al-Mukhtasar*, (Cairo, al-Ḥusayniyyah Press, 1325 A. H. [1907]). It was also edited with Latin translation by J. Hacob Reiske and J. G. Adler (Copenhagen, 1789—1794).

Fyzee, Asaf A. A.

Islamic Culture. Bombay, India, International Book House, 1944

A short survey includes bibliography.

Gibb, Hamilton A. R.

Studies on the Civilization of Islam, Boston, Mass., Beacon, 1962

Edited by S. J. Shaw and William R. Polk, this authoritative work surveys Islamic history, institutions, philosophy, and religion and compares their impact on contemporary intellectual currents.

González Palencia, Ángel

Historia de la España Musulmana. Barcelona, Editorial Labor, 1925; 2nd ed. Barcelona, 1928; and 3rd ed., 1932

History of Islamic civilization in Spain until 1492, with chronological lists and a general bibliography.

Historia de la literatura árabe-española. Barcelona, Editorial Labor, 1928; 2nd ed., 1945

Survey of all fields of cultural activities in Moorish Spain including medicine and botany.

Goldziher, Ignaz

Muhammedanische Studien. 2 vols., Halle, 1888—1890

Vorlesung über den Islam. Heidelberg, 1925

Both works are of general interest, emphasizing socio-religious trends. They deserve a great credit.

Grunebaum, G. E. von

Islam. Essays in the Nature and Growth of the Cultural Tradition. New York, Barnes & Nobles, 1961.

Guitard, Eugene Humbert

Manuel d'histoire de la littérature pharmaceutique et bibliographie pharmaceutique. Paris, 1942

Useful on pharmaceutical development in Europe but very brief regarding the Islamic period.

Guyard, S.

La Civilisation Musulmane. Léçon d'ouverture au Collège de France. Paris, 1884

Haller, Albrecht von

Bibliotheca Anatomica. Qua scripta ad anatomen et physiologiam facientia a rerum initiis recensentur. 2 vols., Zürich, Orell, 1774—1777

Bibliotheca Botanica. Qua scripta ad rem herbariam facientia a rerum initiis recensentur. 2 vols., Zürich, Orell, 1771—1772

Bibliotheca Chirurgica. Qua scripta ad artem chirurgicam facientia a rerum in. rec. 2 vols., Basel, Schweighauser, 1774—1775

Bibliotheca Medicinae Practicae. Qua ser. ad partem medicinae prac. fac. a rer. in. rec. 4 vols., Basel, 1776—1788

In these bibliographies, which include about 62000 works, von Haller revived Western interest in the 18th century in Islamic legacy.

Hamadhānī, Muḥammad ibn ‘Abd al-Malik al-

Takmilat Tārīkh al-Ṭabarī.

A supplement to the history of Muḥammad ibn Jarīr al-Ṭabarī (d. 923) beginning with the reign of al-Muqtadir (908 to 932) to the death of Caliph al-Mustansir (1094—1118).

Hell, Joseph

Die Kultur der Araber. Leipzig, Quelle u. Meyer, 1909; and 2nd ed., 1919

This important and useful survey was translated by S. Khuda Bakhsh under the title, *The Arab Civilization* (London, Heffer, 1926; 2nd ed., Lahor, Ashraf, 1943).

Hitti, Philip K.

History of the Arabs. 1st ed., London, Macmillan, 1937, 6th ed., rev. London and New York, 1958, and 8th ed., 1963

Monumental survey of the history of Arabic-speaking people from the pre-Islamic period to the 20th century.

History of Syria, Including Lebanon and Palestine. London, Macmillan, 1951; 2nd ed., London, 1957

Includes the Islamic medieval period (pp. 409—660).

The Near East in History. A 5000 Year Story. Princeton, N. J., Nostrand, 1961

Includes the Islamic age (pp. 187—328).

Huart, Clement

Histoire des arabes. 2 vols., Paris, 1912—1913

Discusses customs, Islamic society, political history, dynasties, and the transmission of Arabic learning to the West.

Littérature arabe. Paris, 1912

Published originally in the series, *Histoires des Littératures* then translated by Lady H. Lloyd under the title *History of Arabic Literature* (London, 1913).

Idrīsī, Abū ‘Abd Allāh Muḥammad al-Sharīf al-

Nuḣbat al-Mushtāq fī Ikbtirāq al-Afāq.

This geographical work including about 71 maps was written by al-Idrīsī (1099—1166) for King Roger II of Sicily, hence called *Rogerian Treatise*, and was printed in Rome as early as 1592. It contains descriptions of some 70 countries, their fauna and flora, their political system and culture. Other parts of this work have been edited, e.g. R. Dozy and M. J. de Goeje translated the section dealing with Spain, Northwestern Africa and the Sudan with notes and commentary in French under the title *Description de l’Afrique et de l’Espagne*, (Leiden, Brill, 1866), based on Arabic manuscripts at Paris and Oxford.

The part on Sicily was translated into Latin under the title *Siciliae descriptio et geographia Mubiensi desumpta, arabice et latine, Rerum arabicarum quae ad historiam spectant ampla collectio* (Panormi, 1790). Another section was translated into Spanish by Don J. A. Conde (Madrid, 1799); and later by E. Savedra (Madrid, 1881). The Paris Arabic manuscript was also translated into French by A. Joubert (Paris, 1877—1879). For

Idrisi's maps see Konrad Miller, *Mappae Arabicae* (vol. 6, Stuttgart, 1927).

Iṣḫfahānī, Abū al-Faraj ‘Alī ibn al-Ḥusayn al- (or al-Iṣbahānī)

Kitāb al-Aghānī.

This encyclopedic work of al-Iṣḫfahānī (c. 897—967) is probably the greatest history of literature in Islam up to the tenth century. It contains Arabic songs and poems with annals and anecdotes connected with their composition and transmission to later generations. In so doing the author brought a great compilation of historical data on Arabic culture of real interest. It was edited in 20 vols., Cairo, Būlāq, 1285 A. H. (1869). Then R. E. Brünnow edited vol. 21, Leiden, 1888, and thereafter, I. Guide issued a general index to the whole text (Leiden, Brill, 1900). It was later edited by Maḥmūd al-Sāsī of Tunisia in 4 volumes, Cairo, 1322/3 A. H. (1904—5). Another excellent edition (15 vols., Cairo, Dār al-Kutub, (1928—1954). A recent edition was published by Dār al-Thaqāfah in Beirut, Lebanon, 1955—1957.

Jāhīz, Abū ‘Uthmān ‘Amrū ibn Baḥr al-

Al-Bukhālā’.

Essays on misers written in somewhat sarcastic style, yet presenting valuable historical data on social and cultural development of ninth century Islam. It was edited with an introduction by G. van Vloten (Leiden, Brill, 1900) and with annotation by Aḥmad al-Awāmīrī, and ‘Alī al-Jārim (2 vols., Cairo, 1939—1940). It was translated by Charles Pellat, under the title *Le Livre des Avarès* (Beirut-Paris, 1951). Recently this work was edited by Ṭāhā al-Ḥājirī (Cairo, Dār al-Ma‘ārif, 1958), see in particular pp. 46—47, 102, and 213.

Jubayr Abū al-Ḥusayn Muḥammad ibn

Riqlāt Ibn Jubayr.

Chronicles of travels of Ibn Jubayr (1145—1217) to Egypt, the Latin Kingdom in Jerusalem, the Norman Kingdom of

Sicily, Syria, Iraq and Arabia. It reports events, scenes and first-hand data of things the author observed including description of hospitals and an evaluation of the medical profession of the time. These travels were edited by William Wright from a manuscript in the University Library at Leiden (Leiden, Brill, 1852); and by M. J. de Goeje (5 vols., Leiden, Brill, 1907, reprinted, 1949) in the Gibb Memorial Series. It was also printed in Cairo, al-Sa‘ādah, 1326 A. H. (1908), and edited and translated into French with annotations and indices by M. Gaudefroy-Demombynes (4 vols., Paris, 1949 to 1957). English translation with an introduction and notes was made by Ronald J. C. Broadhurst (London, J. Cape, 1952).

Khaldūn, ‘Abd al-Raḥmān ibn Muḥammad ibn

Al-‘Ibar wa-Dīwān al-Mubtadā wāl-Khabar fī Ayyām al-‘Arab wāl-‘Ajam wāl-Barbar wa-man ‘Abadabum min Dhawī al-Sultān al-Akbar (known as *Tārīkh Ibn Khaldūn*).

A monumental historical work especially in regard to the philosophy of civilizations and society, completed in 1395. It was edited by Muḥammad al-Ṣabbāgh et al. (7 vols., Cairo, Būlāq, 1284 A. H. [1867/8]). The first part, known as *al-Muqaddimah*, has been printed in several editions. It was translated with introduction and comments by Franz Rosenthal under the title, *Ibn Khaldūn, The Muqaddimah*, an Introduction to History (3 vols., New York, Pantheon, 1958). It is probably safe to say that the *Muqaddimah* is the most important part of this work and it stands as an ornament of the sociohistorical Arabic literature.

Khaṭīb, Lisān al-Dīn Muḥammad ibn ‘Abd Allāh ibn al-

Al-Iḥāṭah fī Akhbār (Tārīkh) Gharnāṭah.

This is an invaluable account of the history, topography, and political, cultural and social life of this last hold of the Muslims in Spain. Here we have the most reliable account on the great hospital of Granada, the only one of such size and importance that we know of in Moorish Spain. Ibn al-Khaṭīb (1313—1374), who was greatly admired by the historian ‘Abd al-Raḥmān Ibn Khaldūn (1332—1406) was killed in his

prison and his corpse burned to the stake by fanatic theologians who accused him of heresy. His *al-Iḥāṭah* is probably the last great literary contribution of its kind by a native Muslim of Spain. It was edited by Muḥammad A. 'Inān (Cairo, 1955). *A'māl al-A'lām fīman Bīyī'a Qabl al-Iḥtilām min Mulūk al-Islām*.

A historical survey in two parts: one on the Eastern caliphate and the other on North Africa and Moorish Spain. The part on North Africa was published in Palermo, Italy, 1910; and that on Moorish Spain (8th—14th centuries) was edited by E. Lévi-Provençal with introduction and bibliography under the title *Histoire de l'Espagne Musulman* (Rabat, Moncho, 1934).

Kraemer, Jörg

Das Problem der islamischen Kulturgeschichte. Tübingen, 1959

Kremer, Alfred von

Culturgeschichte des Orients unter den Chalifen. 2 vols., Vienna, 1875—1877

A general history of Islamic culture. Volume 1 and 4 chapters of volume II were translated by S. Khuda Bakhsh, under the title, *Orient Under the Caliphs* (Calcutta, 1920—1927).

Der Islam im Morgen- und Abendland. 2 vols., Berlin, 1885—1887

A useful illustrated general history of the Islamic civilization under the Eastern Caliphate, North Africa and in Spain.

Kritzack, James, and Winder, R. Bayly

The World of Islam, Studies in honor of Philip K. Hitti. London, MacMillan 1960

Compilation of articles by eminent arabists on various aspects of the Islamic civilization.

Kutubī, Muḥammad Shākir ibn Aḥmad ibn al-

Fawāt al-Wafayāt.

This work by al-Kutubī (d. 1336) of Damascus is a continuation of the biographical dictionary of Ibn Khallikan (d. 1282) on learned men in Islām. It was edited by M. Muḥyī al-Dīn 'Abd al-Hamīd (2 vols., Cairo, al-Sa 'ādah Press, 1951).

Landau, Rom

Islam and the Arabs. London, Allen & Unwin, 1958 and New York, 1959.

A useful work in regard to scientific activities in Islam with a constant awareness of the spiritual forces involved. As Landau explains (p. 175), "In a civilization whose central postulate is man's nearness to and dependence on God, the doctor is not likely to rely on purely physical therapy only. The spiritual approach will be for him quite as important."

Lane-Poole, Stanley

A History of Egypt in the Middle Ages. London, Methuen, 1901.

The Mohammadan Dynasties. Paris, 1925

A general history of the Caliphs, containing chronological and genealogical tables. The text follows a geographical arrangement starting from the Iberian Peninsula eastward.

Le Bon, Gustav

La civilisation des arabes. Paris, Librairie de Firmin-Didot, 1884

This illustrated work on the general history of Islam to the fall of the Eastern Caliphate was translated into Spanish by Ahmad Abboud, under the title, *La civilización de los arabes*, Buenos Aires, Patagonia, 1943.

Lees, Beatrice A.

Bibliography of Medieval History. London, 1917

Covers the period from 400 to 1500 including the transmission of Arabic writings to the West.

Le Strange, Guy

Baghdad during the Abbasid Caliphate. London, Oxford Univ. Press, 1924

This basic and comprehensive volume on the history of the Abbasids' capital city includes a useful bibliography.

The Lands of the Eastern Caliphate. Cambridge, Eng., University Press, 1936

This excellent 536-page volume is a geographical study of the area based on original Arabic sources.

Lévi-Provençal, Évariste

La Civilisation arabe in Espagne. Vue Generale. Cairo, 1938, new edition, Paris, Maisonneuve, 1948.

A valuable survey of Islamic civilization in Spain enlarged and supplemented by the author's later work, *Islam d'Occident* (Paris, 1948), published by Études d'histoire Médiévale.

It includes a useful bibliography and chronological tables.

L'Espagne Musulmane au Xème siècle, Institutions et Vie Sociale. Paris, Larose, 1932

Includes 24 plates and one chart.

Histoire de l'Espagne Musulmane. New rev. ed., 3 vols., Paris, Maisonneuve, 1950—1953

Volume I, *De la conquête à la chute du Califat du Cordove (710 à 1031 J. C.)* contains a more accurate account of the period than that of R. Dozy. Volumes II and III covers the remaining period of the Islamic era in the Iberian Peninsula. See the author's edition of Ibn al-Khaṭīb's *A'māl al-A'lām*.

Lévi-Provençal, Évariste (editor)

Trois Traités hispanique de hisba. Cairo, 155, published by the Imprimerie de l'Institut Français d'Archéologie Orientale, in the series Documents arabes inédits sur la vie sociale et économique en occident Musulman au moyen âge.

This work contains editions and translations of three treatises on the *hisbah*, the office of authority for enforcing state trade regulations for legal trade to protect the public against fraud and unethical practices in business and professions including the health arts and the use of weights and measures. See I. Goldziher in his introduction to *Au livre d'Ibn Toumert* (Paris, Alger, 1905). The three treatises are: the epistle of Muḥammad

ibn 'Abdūn, *Fī al-Qadā' wāl-Ḥisbah*; the epistle of Aḥmad ibn 'Abd al-Rawūf *Fī Adāb al-Ḥisbah wāl-Muḥtasib*; and the epistle of 'Umar ibn 'Uthmān al-Jarfisī, *Fī al-Ḥisbah*.

Lewis, Bernard

The Arabs in History. London, New York, Hutchinson's Univ. Library, 1950

A brief, well documented historical survey of Arabia before and after the Islamic conquest, the Arabs in Europe, and the climax and following decline of Islamic civilization. It includes maps and a bibliography (pp. 184—188).

Maqqarī, Aḥmad ibn Muḥammad al-

Nafḥ al-Tib min Ghusn al-Andalus al-Raṭīb.

A comprehensive history of Moorish Spain and Africa with biographies of learned men, completed in 1629/30. A large segment of the text is devoted to the life, writings and time of the Wizir Ibn al-Khaṭīb (1313—1374). It was edited with introduction and indices by R. Dozy, G. Dugat, L. Krehl, and W. Wright (2 vols., Leiden, Brill, 1858—1865). It was also published in 4 vols., Cairo, Azhariyyah Press, 1302—1304 A. H. (1884—1887), with *Murūj al-Dhabab* of al-Mas'ūdī in the margin. An abridged English translation was made by Pascual de Gayangos, under the title, *The History of the Mohammedan Dynasties in Spain* (2 vols., London, 1840—1843), based on manuscripts in the British Museum, with critical notes on the history, geography and cultural activities in Muslim Spain.

Maqrīzī, Taqī al-Dīn Aḥmad ibn 'Alī al-

Itti' āz al-Hunafā' bi-Akbbār al-A'immat al-Khulafā'.

A history of the religio-social development in Islam especially under the Fatimid dynasty of Egypt. It was edited by Hugo Bunz (Tübingen, 1911); and by Jamāl al-Dīn al-Shayyāḥ with annotations and index (Cairo, 1948).

Al-Mawā'iz wāl-Itibār fī Dhikr al-Khiṭaṭ wāl-Athār.

Al-Maqrīzī (1364—1442) was one of the most celebrated historians of Medieval Egypt and his *al-Khiṭaṭ* is the best

known of his many works. Here he describes the topography and antiquities of Egypt and surveys many cultural developments including libraries, academies, hospitals, and schools of thought in Islam. It was edited in 2 vols., Cairo, Būlāq, 1270 A. H. (1853); and in 4 vols., Cairo, al-Nīl Press, 1324—1326 A. H. (1906—1908). It was also edited with introduction and annotations by Gaston Wiet (5 vols. (8 parts), Cairo, 1910 to 1929).

al-Sulūk Limaʿrifat Dīwal al-Mulūk.

Chronicles of Muslim rulers in Egypt from the fall of the Fatimids up to the author's time. It was edited by M. Muṣṭafā Ziyādah (2 vols. (6 parts), Cairo, Dār al-Kutub, 1934—1958).

A second edition was started in 1956 by Lujnat al-Tāʿlīf in Cairo. This work presents useful information on development of hospitals, schools, and the practice of medicine in Egypt.

Masʿūdī, ʿAlī ibn Ḥusayn al-

Murūj al-Dhahab wa-Maʿādin al-Jawhar.

A universal history with particular emphasis on events that took place under the caliphs up to 947/8 which shaped the social, political and cultural life in Islam. It was published in 2 vols., Cairo, Azhariyyah Press, 1303 A. H. (1886); and was edited and translated with an index by C. Barbier de Meunard, and Pavet de Courteille, under the title *Les Prairies d'or et des mines de pierre* (9 vols., Paris, 1861—1877).

Al-Tanbīh wāl-Isbrāf.

On general social and natural history, this work, completed about 956, is to be considered the climax of the author's literary productivity. It was edited by Michael J. de Goeje with indices and glossaries as volume 8 (1893—1894) of the series *Bibliotheca Geographica Arabica* (Leiden, Brill, 1870—1894). It was translated by Baron Carra de Vaux under the title *Le livre de l'avertissement et de revision* (Paris, 1896—1897).

Mehren, M. A. F.

Traité mystiques d'Abū Ali al-Hosain ben Abdallāh ben Sīnā au d'Avicenna. Leiden, Brill, 1899

Discusses the religious and philosophical writings of the celebrated physician Ibn Sīnā (980—1037).

Millás-Vallicrosa, José M.

Nuevos Estudios Sobre Historia de la Ciencia Española. Barcelona, Instituto “Luis Vives” de Filosofía, 1960

Well documented series of essays, being a continuation of an earlier compilation of articles published in 2 parts under the title *Estudios sobre Historia de la Ciencia Española* (Barcelona, 1949). Articles included, vary in their importance, and especially those related to developments and contributions during the Islamic rule in Spain.

Muir, William

The Caliphate, Its Rise, Decline, and Fall. 3rd ed. Oxford Univ. Press, 1899

A reliable, general history which relies heavily on original Arabic sources. It was newly revised by T. H. Weir (Edinburgh, Grant, 1915).

Müller, August

Der Islam im Morgen- und Abendland. 2 vols., Berlin, 1885—1887

One of the best general histories published in the 19th-century on the Islamic civilization during the Middle Ages.

Muqaddasī, Abū ‘Abd Allāh Muḥammad ibn Aḥmad al-

Aḥsan al-Taqāsīm fī Ma‘rifat al-Aqālīm.

In this work, al-Muqaddisī (or al-Maqdisī, 947/8—985/6) gives a detailed account of things he saw and learned through his extensive travels in Islamic lands and in India. It includes original observations of historical interest. It was edited with Latin translation and commentary by M. J. de Goeje (Leiden, Brill, 1877); and with French translation and commentary by R. Dozy and de Goeje (Leiden, 1906). It was translated into English by G. S. A. Ranking, and R. F. Azo and published by the Asiatic Society of Bengal in *Bibliotheca Indica* (4 parts, Calcutta, 1897—1910).

Nicholson, Reynold A.

A Literary History of the Arabs. New York, Scribner, 1907, revised and reprinted several times, Cambridge Univ. Press, 1930, 1941, 1953, and 1956

A remarkable and well documented study of Islamic culture in general. It includes a bibliography of works on the subject by European authors (pp. 477—486).

Nöldeke, Theodor

Orientalische Skizzen. 2 vols., Berlin, 1892

Outlines the history of Islamic civilization.

Nuwayrī, Aḥmad ibn ‘Abd al-Wahhāb al-

Nihāyat al-Arab fī Funūn al-Adab.

A valuable encyclopedia on Arabic literature, history, geography, and natural sciences, completed in early 14th century. It was published in 18 vols., Cairo, Dār al-Kutub, 1923—1955.

O’Leary de Lacy

Arabic Thought and its Place in History. London, Paul, Trench and Trubner, 1922; and New York, Dutton, 1922; revised and reprinted in 1939 and 1954

Gives the Syriac and then the Arabic version of Hellenism. This book is useful but not always reliable.

Paetow, Louis John

A Guide to the Study of Medieval History. Berkeley, Calif., 1917; reprinted, New York, 1931; revised under the auspices of the Mediaeval Academy of America, New York, 1959

A valuable guide to literature of the Middle Ages, including topical outlines, recommendations for readings and bibliographies.

Pfannmüller, D. Gustav

Handbuch der Islam-Literatur. Berlin-Leipzig, 1923

Contains bibliographies on Islamic art, philosophy, sciences and religious literature.

Pines, Salamon

Beiträge zur islamischen Atomenlehre. Berlin, Heine, 1936

Discusses the philosophy of the atomic theory in Islam and influences from Greek and Indian schools of thought. It includes al-Rāzī's ideas on the subject.

Pons Boigues, F.

Ensayo bio-bibliográfico sobre los historiadores y geógrafos árabe-españoles. Madrid, 1898

Qalqashandī, Shihāb al-Dīn Aḥmad ibn 'Alī al-

Subḥ al-A'shā fī ṣinā'at al-Inshā.

A comprehensive encyclopedia on Arabic language, government, literature, history, education and natural sciences, completed in 1411. Max Meyerhof reminds us that al-Qalqashandī (d. 1418) was probably the earliest known Arabic writer who mentioned the sleeping sickness. See *Proceedings of the Royal Society of Medicine* (London, 1937, vol. 30, pt. 6, pp. 670 to 671). It was edited in 14 vols., Cairo, Dār al-Kutub, 1913 to 1919.

Rahman, Fazlur

Avicenna Psychology. Oxford, University Press, 1952

A useful documented study.

Renan, Ernest

L'Islamisme et la Science. Paris, 1883

Rescher, O.

Abriß der arabischen Literaturgeschichte. 2 vols., Stuttgart, 1925 to 1933

Contains numerous translations of biographical material.

Rosenthal, Franz

A History of Muslim Historiography. Leiden, Brill, 1952

Discusses historical consciousness and the basic forms of Muslim historiography.

Sa'īd, 'Abd al- Malik ibn

Washī al-Ṭurūs fī Ḥulā Jazīrat al-Andalus.

On the topography of the Iberian peninsula and history of Moorish Spain, edited by Shawqī Ḍayf, and published under the title, *Ḍabkhā'ir al-'Arab*; 1. *Al-Mughrib fī Ḥulā al-Maghrib* (2 vols., Cairo, 1953—1955).

Sarton, George

Horus. A guide for the study of the history of science. Waltham, Mass., Chronica Botanica, 1952

Includes valuable essays and reference material, and explains methods for the study of science and tradition development. This book gives encouragement and helpful suggestions for research in the history of the Islamic legacy. Here the author states that (pp. 29—30) "Islamic culture in the Middle Ages is of a singular interest especially to those concerned about rebuilding the human integrity in the face of national and international disasters. It was and to some extent still is, a bridge, the main bridge between East and West ... When we try to explain Western culture we cannot leave out Islamic culture and its influence without spoiling the whole story ... (For) the Arabic story helps us to understand our own."

The Incubation of Western Culture in the Middle East. A George C. Keiser Foundation lecture delivered in the Coolidge Auditorium of the Library of Congress, March 29, 1950. Washington, D. C., Library of Congress, 1951

A very useful essay. For detail see also Sarton's "The unity and diversity of the Mediterranean World," vol. 2, *Osiris* (1936), pp. 406—463.

The Life of Science. Essays in the history of civilization. New York, Abelard-Schuman, 1948; reprinted Bloomington, Ind., Indiana University, 1960; and London, 1961

On the definition, methods, evaluation, and the need for the study of the history of science, with a useful bibliography. In this book the author attempts to answer (p. 5) the argument

of those who “have no time to study the past, nor have the faintest idea of how to study it.”

See also *Sarton on the History of Science*, essays by George Sarton (1884—1956) selected and edited by Dorothy Stimson, Cambridge, Mass., Harvard Univ. Press, 1962. It includes chapters on Avicenna (Ibn Sīnā) and Maimonides (ben Maymon) as two great philosophers and physicians in Islam.

Sauvaget, Jean

Historiens arabes. Paris, 1946

Introduction à l'histoire de l'Orient Musulman, éléments de bibliographie. Paris, 1943, Rev. and completed by Cl. Cahen 1961

General historical bibliography of Islam, Includes two indices.

Sedillot, Louis P. E. A.

Histoire générale des arabes, leur empire, leur civilisation, leurs écoles philosophiques, scientifiques, et littéraire. 2 vols., Paris, 1877

Not always reliable and in many cases outdated.

Shāmah, Shihāb al-Dīn ‘Abd al- Raḥmān ibn Ismā‘il al-Muqaddisī Abū

al-Rawḍatayn fī Akbbār al-Dawlatayn.

A general history of the two dynasties, the Nūrīds and the Ayyūbīds, who ruled Syria and Egypt during the 12th and 13th centuries of our era. It was published in Cairo, wādī al-Nīl Press, 1287/8 A. H. (1871).

Tarājīm Rijāl al-Qarnayn al-Sādis wāl-Sābi‘.

Biographies of learned men of the 6th and 7th centuries A. H. (12th and 13th centuries A. D.) following chronological order, year after year up to the time of the author (1203—1268). It was published in Cairo, 1366 A. H. (1947).

Shushtery, A. M. A.

Outlines of Islamic Culture. Historical and Cultural Aspects. Bangalore, India, Bangator Press, 1955

Spuler, Bertold

Geschichte der islamischen Länder, I. Die Chalifenzeit: Entstehung und Zerfall des islamischen Weltreiches; II. Die Mongolenzeit. 2 vols., Leiden, Brill, 1952—1953

This valuable history of the Islamic civilization under the Caliphs and the Mongols includes dynastic tables, maps, bibliography, and indices. It was translated by F. R. C. Bagley, under the title *The Muslim World, a Historical Survey*. Part 1, *The Age of the Caliphs* II. *The Mongol Period* (Leiden, Brill, 1960) includes added passages and notes which do not appear in the original German text.

Spuler, B., and Forrer, L.

Der vordere Orient in islamischer Zeit. Bern, 1954

A useful work published by the Wissenschaftliche Forschungsberichte.

Steinschneider, Moritz

Die arabische Literatur der Juden. Ein Beitrag zur Literaturgeschichte, größtenteils aus handschriftlichen Quellen. Frankfurt a/M., Kauffmann, 1902

Storey, C. A.

Persian Literatur. A Bio-bibliographical Survey. 2 vols., in 4 pts., 1935—1958

A valuable general guide list.

Suyūṭī, Jalāl al-Dīn Abū al-Faḍl ‘Abd al-Raḥmān al-Ḥusn al-Muḥāḍarab fī Akbbār Miṣr wāl-Qābirab.

A history of Egypt from antiquity to the author's (1445 to 1505) time, with emphasis on biographies of eminent men and rulers in the Islamic period. It was repeatedly published in Cairo, Būlāq, 1860; Cairo, al-Waṭan, 1882; and Cairo, al-Sa‘ādah, 1324 A. H. (1906).

Tārīkh al-Khulafā. (Or *Āthār al-Uwal fī Tartīb al-Duwal.*)

A general history of the Muslim world from about 632 to the year 1481. It was edited by William Lees, and ‘Abd al-Ḥaqq

(Calcutta, 1856); and was published in Cairo, 1305 A. H. (1887/8). It was translated by H. S. Jarrett and published by the Asiatic Society under the title *History of the Caliphs* (Calcutta, 1881).

Sykes, Percy

A History of Persia. 2 vols., London, Macmillan, 1951

A monumental work on the subject.

Ṭabarī, Muḥammad ibn Jarīr al-

Tārīkh (Akkbār) al-Rusul (al-Umam) wāl-Mulūk.

This universal history of al-Ṭabarī (838—923) is the earliest known complete chronicle of its kind in Islam. It is therefore an important source of information and one which was repeatedly quoted and consulted by later historians. It was edited with an introduction, commentary, and indices in Latin by M. J. de Goeje et al. (15 vols., Leiden, Brill, 1879—1901). It was also published in 6 vols. (13 parts), Cairo, 1327 A. H. (1909); and (8 vols., Cairo, al-Istiḳāmah, 1939).

Taghrī Birdī, Abū al-Maḥāsin Yūsuf ibn

Al-Nuḥūm al-Zābirah fī Mulūk Miṣr wāl-Qābirah.

A history of Egypt from the Arab conquest to 1453. The first two parts were edited by J. G. Juynboll, and B. F. Matthes (2 vols., Leiden, Brill, 1855—1861). Four more parts were edited with introduction and annotations in English by William Popper (3 vols., Berkeley, Calif, 1909—1929). The whole work was published in 12 vols., Cairo, Dār al-Kutub, 1931 to 1956.

Tanūkhī, Abū ‘Alī al-Ḥasan-al

al-Faraj Ba‘d al-Shiddah.

Chronologies in 14 chapters on the theme that relief comes after distress including anecdotes related to the medical practice. It is the best known work by judge al-Tanūkhī (939—994). It was published by al-Khānjī Library in 2 vols., Cairo, al-Muḥammadiyyah Press, 1955. Earlier it was published in Leiden, Brill, 1879; then in 8 parts, Cairo, Istiḳāmah Press, 1939.

Tauer, Felix

Dějiny a Kultura islámu. 4 parts, Prag, 1936—1943

On the history and cultur of the Islamic period.

Ṭayfūr, Aḥmad ibn Ṭāhir ibn

Baghdād.

The first known history of this city by a competent native (819—893). Edited by Muḥammad Z. al-Kawtharī (Cairo, 1949) from a manuscript at the British Museum. This work was frequently quoted by later Muslim historians, such as Ibn Jarīr al-Ṭabarī and Abū al-Faraj al-Iṣfahānī (Iṣbahānī).

Terrasse, Henri

Islam D'Espagne. Une rencontre de l'Orient et de l'Occident. Paris, 1958

Thomas, Bertram

The Arabs. The life story of a people who have left their deep impress on the world. Garden City, N. Y., Doubleday, Doran, 1937

An illustrated socio-historical survey with maps, but not documented.

Ṭiqṭaqā, Muḥammad ibn 'Alī ibn al-

Al-Fakhrī fī al-Adāb al-Sulṭāniyyah wāl-Diwal al-Islamiyyah.

Chronicles of the Islamic dynasties from about 632 to the fall of Baghdād in 1258; completed about 1302. It appeared in several editions: Cairo, 1317 A. H. (1899); Cairo, Raḥmaniyyah Press, 1341 A. H. (1921); and Cairo, al-Maktabah al-Tujāriyyah al-Kubrā, 1927. It was also edited with biography of the author and indices in French by H. Derenbourg (Paris, Bouillon, 1895). Again edited and translated into French with introduction and annotations by Émile Amar, and Ernest Lerous, and published by the *Mission Scientifique de Maroc* in *Archives Marocaines* (vol. 16, Paris, 1910). Then Charles E. J. Whitting published English translation under the title *al-Fakhrī; on the system of government and the Moslem Dynasties* (London, 1947).

Tritton, A. S.

Materials on Muslim Education in the Middle Ages. London, 1957

Compilation of an information and chronicles of learned men and educational institutions in Islam. Contains several contradicting statements and data. Poorly documented and lacks organization.

Tyan, Émile

Le Califat. Paris, R. Siray, 1954

Published as vol. I, by the Institutions de droit public Musulman. Includes bibliographical notes.

Walzer, Richard

Greek into Arabic. Essays on Islamic Philosophy. Cambridge, Mass., Harvard University Press, 1962

Comparative study of Greek and Islamic philosophy, tracing lost Greek texts in Arabic versions. The influence of Greek philosophy on Muslim thinkers such as al-Kindī, al-Rāzī, and al-Farābī.

Wellhausen, Julius

Das arabische Reich und sein Sturz. Berlin, 1902

Wüstenfeld, Ferdinand

Geschichte der Fatimiden-Chalifen nach arabischen Quellen mit einer Karten-Skizze. Göttingen, 1881

On the history of the Fatimids in Syria, Egypt and North Africa.

Die Übersetzungen arabischer Werke in das Lateinische seit dem XI. Jahrhundert. Göttingen, 1877

On the transmission of Arabic legacy to the West.

Ya'qūbī, Aḥmad ibn Wāḍih al-

Al-Buldān.

In this geography text al-Ya'qūbī (d. 897) describes the topography and economic history of the Islamic states he visited

during his extensive travels. It was edited by William Juynboll (2 vols., Leiden, Brill, 1860—1861); and by M. J. de Goeje (Leiden, Brill, 1892); and was translated by Gaston Wiet, under the title *Les Pays* (Cairo, Inst. Franc. Arch. Orient., 1937).

Tārīkh al-Ya‘qūbī.

Universal history from Adam to the year 874 during the reign of Caliph al-Mu‘tamid. It includes biographies of learned men including physicians. It was edited with introduction and addenda by Th. Houtsma (2 vols., Leiden, Brill, 1883). Also published in Najaf, Iraq, 1939; and in 2 vols., Beirut, Dār Ṣādir, 1960.

Yāqūt, Shihāb al-Dīn Abū Abd Allāh al-Ḥamawī al-Rūmī
Mu‘jam al-Buldān.

On the towns, countryside and places in Islamic lands, following alphabetical order. Dedicated, 1228, to the library of the celebrated wazīr and historian al-Qiftī in Aleppo, Syria. It was edited by Ferdinand Wüstenfeld, under the title *Jacut's geographisches Woerterbuch* (6 vols., Leipzig, 1866—1873); and published by M. A. al-Khānjī in 10 vols., Cairo, al-Sa‘ādah Press, 1323—1325 A. H. (1905/7), including a supplement, *Manjam al-‘Umrān*, in the last two volumes, and in 5 vols., Beirut, Dār Ṣādir, 1955—1957. Under the auspices of the George C. Keiser Foundation, Washington, D. C. a translation and annotation of the *Introductory Chapters of Yāqūt's Mu‘jam al-Buldān*, was published by Wadie Jwaideh (Leiden, Brill, 1959).

Mu‘jam al-Udabā’. (Or *Irshād al-Arīb ilā Ma‘rifat al-Adīb.*)

A valuable bio-bibliography of learned men in Islam, edited by D. S. Margoliouth (7 vols., Leiden, Brill, 1907—1926); reprinted by the E. J. W. Gibb Memorial Fund (London, 1923 to 1931). Another edition based on Margoliouth's was made by Aḥmad F. Rifa‘ī (20 vols., Cairo, Dār al-Māmūn, 1936—1938).

Zambaur, Eduard de

Manuel de généalogie et de chronologie pour l'histoire de l'Islam.
Hannover, 1927

A useful work, containing 20 genealogic tables, 5 charts, and bibliography.

Zaydān, Jurjī

Tārīkh Adāb al-Lughah al-‘Arabiyyah. 4 vols., Cairo, al-Hilāl, 1909—1911, reprinted 1911—1914, and in 1922

A very useful history of Arabic language, literature and science, with biographies of learned men and their works. The first two volumes cover the Arabic period up to 1258, the fall of Baghdād.

It also mentions several Arabic manuscripts, their importance and location, and the development of Arabic civilization up to the beginning of the 20th century.

Ziadeh, Nicola A.

Damascus under the Mamlūks. Norman, Oklahoma, Univ. of Oklahoma Press, 1962

Contains the chronicles of Damascus, Syria during the Mamlūks dynasty in Syria and Egypt from 1250 to 1516, when commerce, industry and Arabic literature flourished in both peace and war. This 200 pages book includes a map, bibliography and an index. It was published as vol. 12, in The Center of Civilization Series.

III

Reference Books, Bibliographies and Dictionaries

Abd el-Malek, Shafik

English-Arabic Glossary of Anatomical Terms. Cairo, 1940

A particularly good dictionary on human anatomy.

Afshar, I.

Bibliographie des catalogues des manuscrits persans. Tehran, Iran, 1958

A useful guide.

Ahlwardt, W.

Verzeichnisse der arabischen Handschriften der königlichen Bibliothek zu Berlin. 10 vols. (22 parts), Berlin, 1887—1899

Volumes I—IX describe 10171 Arabic manuscripts classified according to subject matter (for medicine, mathematics, astronomy and related fields see volume V). Volume X contains valuable annotations, indices and a bibliography.

Aḥmad Kamālu'd-Din, and Muqtadir, 'Abdu'l

Catalogue of the Arabic and Persian Manuscripts in the Library of Calcutta Madrasah. Calcutta, 1905

Contains reference to a few medical manuscripts with introduction by E. Denison Ross.

Alger, Bibliotheque Musée d'Alger, see Fagnan, E.

'Alī, Aḥmad ibn (editor)

Fihris al-Maktabah al-Baladiyyah fi al-Iskandariyyah. 6 vols., Alexandria, Egypt, 1927—1929

Index of manuscripts and books in the municipal Library of the City of Alexandria, Egypt, with brief biographies of authors.

Ali, Shams al-Ulama Mirza Ashraf (editor)

Catalogue of the Arabic Books and Manuscripts in the Library of Asiatic Society of Bengal. 2 vols., Calcutta, Imperial Library, 1899—1904

Allouche, I. S., and Regragui, Abdullah

Catalogue des manuscrits Arabes des Rabat. 2nd series, 2 vols., Paris, 1954—1956?

A descriptive catalog of the manuscripts at the Bibliothèque Générale et Archives, Rabat, Morocco. This library houses several important medical manuscripts and is administered by the Ministry of National Education. For the first series see E. Lévi-Provençal, *Les Manuscrits arabes de Rabat*, published by the *Institut des Hautes-Études Marocaines*, Paris, 1921.

Amari, Michele

Biblioteca Arabo-sicula. Leipzig, 1855; and appendix, 1875

‘Aqīqī, Najīb

Al-Mustashriqūn. Beirut, al-Ittihād Press, 1937

On Arabists and orientalists in general.

Arberry, A. J.

A Handlist of the Arabic manuscripts in the Chester Beatty Library. 6 vols., London, 1955—1961

This well executed series will be completed in 10 volumes. The author also published.

A Second Supplementary Hand-List of the Muḥamadan Manuscripts in the University and Colleges of Cambridge. Cambridge, Eng., University Press, 1952

Gives name of author, title, number of folios and date of manuscript when available, but it lacks information or organization relative to the subject matter. Pages 75—80 include index.

Arberry, A. J., Wilkinson, J. V. S., Minovi, M., and Blochet, E.

A Catalogue of the Persian manuscripts and Miniatures in the Chester Beatty Library. 3 vols., Dublin, Hodges Figgis, 1959—1962.

Arends, Johannes

Volkstümliche Namen der Arzneimittel, Drogen, Heilkräuter und Chemikalien. Eine Sammlung der im Volksmund gebräuchlichen und Handelsbezeichnungen. 15th ed., Rev., Berlin, Springer, 1961

A useful dictionary.

Artelt, Walter; Heischkel, Edith; and Wehmer, Carl

Periodica Medica; Titelabkürzungen medizinischer Zeitschriften. Stuttgart, Thieme, 1952.

Aumer, J.

Die arabischen Handschriften der Königlichen Hof- und Staatsbibliothek in München. Munich, 1866

‘Awād, G.

Historical Manuscripts in the Iraq Museum Library. Baghdād, 1957—1959

Reprinted from the journal *Sumer*.

Baghdādī, Isma‘īl

Hidāyat al-‘Arifin Li Asmā al-Mu‘allifin wa-Athār al-Muṣannifin. 2 vols., Istanbul, Turkey, 1951—1955

This bio-bibliographical guide list of authors and their works follows and supplements *Kashf al-Zumūn* by Ḥajjī Khalfah (d. 1658).

Ballard, James F.

A Catalogue of the Medieval and Renaissance manuscripts and Incunabula in the Boston Medical Library. Boston, Mass., 1944

Contains manuscripts and Incunabula of medical works by Muslim physicians or their translations.

Bankipore Oriental Public Library, see Ross, Denison E. et al.

Basset, R.

Les manuscrits arabes des Bibliothèque des Zaouias. Alger-Paris, 1886

Les manuscrits arabes de deux bibliothèques de Fes. Alger-Paris, 1883

Batavia, (Holland), see Berg, L. W.; Dozy, R. et al.; and Ronkel, Th. S.

Bedevian, Armenag K.

Illustrated polyglottic dictionary of plant names. Cairo, Argus & Papazian, 1936

Gives very useful information and alphabetical lists of common names of plants in Arabic, English, French, German, Italian, Turkish and Armenian, with appendices and explanatory remarks.

Bel, Alfred O.

Catalogue des livres arabes de la Bibliothèque de la Mosquée d'el-Qaraouiyinèa. Fes, Imprimerie Municipale, 1918

Includes Arabic text (160 p.) and an introduction in French (16 p.).

Ben Cheneb, M.

Catalogue des manuscrits conservés dans les principales bibliothèques publiques Algériennes, de le Grande Mosquée d'Alger. Alger-Paris, Jourdan, 1909

Berg, L. W. C. Van den

Codicum arabicorum in bibliotheca societatis artium quae Bataviae floret asservatorum catalogus, absolvit indicibusque instruxit. Bataviae-Pragae, 1873

See also Ronkel, Th. S. van.

Bibliothèque Générale et Archives, Rabat, Morocco,
see Allouche, I. S. et al.

Bibliotheca Islamica, see Ritter, Hellmut, and Diétrich, Albert (editors)

Bibliothèque National de Paris, see Blochet, E.: Slane, MacGuckin de and Vajda, G.

Bidez, J.

Catalogue des manuscrits Alchemiques. Published by the Academie Royale de Belgique, Bruxelles, 1937

Contains Greek, Latin, and Arabic manuscripts.

Blochet, E.

Catalogue des manuscrits arabes des nouvelles acquisitions (1884—1924)
Paris, Leroux, 1925

Describes about 2087 manuscripts including several related to medical sciences not mentioned in de Slane's *Catalogue* of the earlier collection.

Inventaire de la Collection de manuscrits Musulmans de M. Decourdemanche. Paris, 1916

Extracted from *Journal Asiatique*.

Les enluminures des manuscrits Orientaux-turcs, arabes, persans-de la Bibliothèque Nationale. 2 vols., Paris, Gazette de Beaux Arts, 1926.

Bodleian Library at Oxford, see Nicol, Alexander

Boston Medical Library; see Ballard, J. F.

Breslau, Stadtbibliothek, see Brockelmann, Carl

British Museum, see Cureton, W.; Edwards, E.; Ellis, A. G.; Fulton, A. S.; and Rieu, Charles

Brockelmann, Carl

Die arabischen, persischen, türkischen, melaischen Handschriften der Stadtbibliothek zu Hamburg. Hamburg, Meissner, 1908

Geschichte der Arabischen Literatur, see Section I, under same author.

Verzeichnis der arabischen, persischen, türkischen und hebräischen Handschriften der Stadtbibliothek zu Breslau. Breslau, Marcus, 1903

Browne, Edward Granville (compiler)

Handlist of the Muhammadan Manuscripts at the Cambridge University Library.

Cambridge, Eng., University, 1900; followed by a handlist of printed and lithographed books presented by Mrs. E. J. W. Gibb, Cambridge, 1906. Edward G. Browne compiled also *A Supplementary Hand-List of the Muhammadan Manuscripts*

including all those written in the Arabic characters preserved in the Libraries of the University and Colleges of Cambridge, Cambridge, Eng., University Press, 1922.

Part One of this catalog lists 1386 manuscripts and up to manuscript 1596 in part 2 (untitled manuscripts). It includes two indices.

Bustānī, Buṭrus al-

Dā'irat al-Ma'ārif (Encyclopedie arabe). 11 vols., Cairo, Dār al-Hilāl, 1876—1900

Volumes I—VI of this important encyclopedia were completed by the author; volumes VII and VIII by his son Salīm, and volumes IX—XI up to the letter “ayn” of the Arabic alphabet by Najīb, Amin and Sulayman al-Bustanī. A new edition is now in preparation by Fūād Afrāīm al-Bustānī of which 5 vols appeared, Beirut, Lebanon, 1956—1964.

Calle, B.

The Arabic Manuscripts, Literature and Art. London, 1943

Useful in giving directions of study, collation and judging authenticity of Arabic manuscripts.

Cambridge University Libraries, see Arberry, A. J.; Browne, E. G.; R. A. Nicholson, and Palmer, E. H.

Casiri, Michaelis

Bibliotheca Arabico-Hispana Escorialensis. 2 vols., Madrid, 1760—1770

Invaluable bio-bibliographical index of 1852 Arabic manuscripts at the Real Bibliotheca del Monasterio de san Lorenzo de El Escorial, Spain. Casiri (al-Ghazirī of Lebanon, 1710—1791) was a librarian at Escorial and the interpreter of oriental languages to the king of Spain. He gave important information in Latin and Arabic based upon quotations from the manuscripts and other historical sources. See also Derenbourg, Hartwig and Lévi-Provençal, E.

Castell, Edmund

Lexicon heptaglotton, hebraicum, chaldaicum, syriacum, samaritanum, aethiopicum, arabicum, conjunctim: et persicum, separatim. In quo, omnes voces ... tam in mssts. quam impressis libris, cum primis autem in Bibliis polyglottis ... continentur ... Cui accessit brevis, & harmonica ... grammaticae omnium praecedentium linguarum delineatio ... Londini, T. Roycroft, 1669

A very useful dictionary especially for the period of our concern.

Chalabi, Dāwūd, see Jalabī, D.

Chauvin, Victor C.

Bibliographie des ouvrages arabes ou relatifs aux arabes, publiés dans l'Europe Chrétienne de 1810 à 1885. 12. vols., Liège and Leipzig 1892—1922

The first 11 volumes of this useful index were completed, 1892—1909. After Chauvin's death in 1913, volume 12 was compiled and edited by M. Louis Polain.

Cheikhō, Louis

Catalogue des manuscrits des auteurs arabes Chrétiens depuis l'Islam. Beirut, Catolic Press, 1924.

The Arabic text of this catalog, also entitled *al-Makhtūtāt al-'Arabiyyah li-Katabat al-Naṣrāniyyah*, includes short biographies of Arab-Christian physicians and some of their existing works in manuscripts.

Catalogue raisonné des manuscrits de la Bibliothèque orientales de l'Université de St. Joseph. Beirut, Catholic Press, 1922—1923

Includes a section on chemical and medical Arabic manuscripts contained in this fine collection.

Chester Beatty Library, see Arberry, A. J. et al.; and Minorsky, V.

Cushing, Harvey

The Harvey Cushing Collection of Books and Manuscripts. New York, Schulman, 1943

The Collection is housed at the Yale University Medical Library, New Haven, Conn., and contains several Arabic and Persian manuscripts related to medical sciences.

Dagher, Joseph A.

Fabāris al-Maktabah al-‘Arabiyyah fī al-Khāfiqayn. Beirut, Lebanon, Ṣādir Rayḥānī, 1947

Useful index of libraries in Arab states.

Al-Maktabah al-‘Ammah wa-Athārūhā fī Taqwīm al-Thaqāfab, I. Dalīl al-‘Ārib ilā‘Ilm al-Kutub wa-Fan al-Makātib (French title: *Manuel pratique de bibliographie et de bibliothéconomie à l’usage des pays du Proche-Orient*). Beirut, Ṣādir Rayḥānī, 1947

Important guide to classifying, organizing and cataloguing Arabic manuscripts, periodicals and printed material in libraries of the Near Eastern Arab states according to modern methods. It emphasizes the role of organized libraries in educating the public.

Répertoire des Bibliothèques du Proche et du Moyen-Orient. Paris, 1951

L’Orient dans la littérature française d’après guerre (1919—1933). Leiden, Brill, 1937

Contains over 5600 recensions.

Dechambre, A. (director)

Dictionnaire Encyclopedique des Sciences medicales. 100 vols., Paris, 1864—1889

One of the greatest achievements of 19th century French medical scholarship. This encyclopedia includes bio-bibliographies by several authors.

Della Vida, Giorgio L.

Elenco dei manoscritti arabi islamici della Biblioteca Vaticana (Rossiani, Vaticani, Barberiniani, Borgiani). Vatican City, Italy, 1935

This useful list supplements two earlier bibliographies: the one by: Yūsuf al-Sam‘ānī under the title *Bibliotheca Orientalis*

(4 vols., Rome, 1719—1730); and the second by Istifan Awwad, *Bibliothecae Apostolicae Vaticanae Codices manuscritti* (3 vols., Rome, 1756—1759), of which the first volume is devoted to Oriental manuscripts. See also Awwad's *Bibliothecae medicae codicum manuscritti orientalium (Arabi, Persiani, Turchici) Catalogus* (Florence, 1732); supplemented by A. M. Biscionius' *Bibl. med. Laurent Cat. I. Codices Orientalium complectens* (Florence, 1752).

Derenbourg, Hartwig

Les manuscrits arabes des l'Escorial. Vol. 1, Paris, 1884

Describes the 1952 manuscripts at El Escorial library in Spain. See Casiri, Michael.

De Ricci, Seymour, and Wilson, William J.

Census of Medieval and Renaissance Manuscripts in the United States and Canada. 2 vols., and Index, New York, Wilson, 1935—1940, supplemented by C. U. Faye continued and edited by W. H. Bond, Cambridge, Mass. Harvard Univ. Press, 1962 and New York Bibliographical Society of America, 1962.

Describes manuscripts dated before 1600 A. D. in 477 public and private collections in the two countries. See for detail Gertrude Annan, "Outstanding Acquisitions of Rare Books in Medical Libraries of the United States in the Last Decade," *Bull. Med. Lib. Assoc.* 45 (1957); pp. 291—300; and Loren MacKinney and Thomas Herndon, "American Manuscript Collections of Medieval Medical Miniatures and Texts," *Jour. of the History of Medicine and Allied Sciences*, 17 (1962), pp. (284)—307. The first 2 vols. were reprinted, New York, Kraus, 1961.

Dozy, Reinhart p. A.

Supplément aux Dictionnaires arabes. 2 vols., Leiden, Brill, 1877—1881, reprinted in 1927

Useful both as a bibliographic reference as well as a lexicon. *Notices sur quelques manuscrits arabes avec un facsimile l'écriture d'al-Makrizi*, Leiden, Brill, 1851

Dozy, R. et al.

Catalogus codicum orientalium academiae Lugduno-Batavae, Auctoribus. Leiden, Brill, 1851. 2nd edition by M. J. de Goeje, M. Th. Houtsma and Th. W. Juynboll under the title, *Catalogus Codicum arabicorum Bibliothecae Academiae Lugduno-Batavae* (3 vols., Leiden, Brill, 1888—1907).

Duveen, Denis I.

Bibliotheca Alchemica et Chemica. London, Weil, 1949

Annotated and useful Index of printed books on alchemy, chemistry, and cognate subjects in the Library of Denis I. Duveen, now the property of the University of Wisconsin.

Dyck, Edward Cornelius van

Iktifā' al-Qanū' bimā huwa Maṭbū' min Ashbar al-Ta'ālif al-'Arabiyyah fī al-Maṭābi' al-Sharqiyyah wāl-Gharbiyyah. Cairo, al-Hilāl Press, 1896—1897

Index of printed Arabic books especially those related to Arabic civilization, with indices.

Edinburgh University Library, see Hakk, Ashraful

Edwards, E. (editor)

A Catalogue of the Persian Printed Books in the British Museum. London, 1922

Egyptian National Library

Fibris al-Kutub al-Arabiyyah al-Mahfūẓah fī al-Maktabah al-Khidaywiyyah al-Miṣriyyah. 4 vols. (7 parts), Cairo, Būlāq, 1888—1892

Index of Arabic books housed at the library, named after the Khidaywiyyahs, then rulers of Egypt.

Ellis, A. G. and Edwards, E. (editors)

Arabic Manuscripts Acquired since 1894. A Descriptive List. London, Longmans, 1912

Supplements earlier catalog published by Charles Riew, London, 1894.

Ellis, A. G. and Fulton, Alexander S. (editors)

Catalogue of the Arabic Books in the British Museum. 3 volumes including a supplementary catalogue with indices, London, 1894—1926

The Encyclopedia of Islam, see Houtsma, M. Th. et al.

Escorial, Real Biblioteca del Monasterio de San Lorenzo de El, see Casiri, Michael

Ettinghausen, Richard

A selected and annotated bibliography of books and periodicals in Western languages dealing with the Near and Middle East with special emphasis on medieval and modern times. With supplement, Washington, D. C., Middle East Institute, 1954

A very useful and organized compilation, concisely annotated with an author's index.

Fagnan, E.

Catalogue des manuscrits arabes, turcs, et persans de la Bibliothèque Musée d'Alger. Paris, 1893

It constitutes v. 18, Alger, No. 1373 of *Catalogue Générale des manuscrits des bibliothèques publiques de France*.

Firūzabādī, Majd al-Dīn al-

Al-Qāmūs al-Muḥīṭ

This famous lexicographical compilation was published several times and translated into Turkish and Persian. I consulted the 4 vols. Cairo ed., Sa'ādah Press, 1332 A. H. (1913).

Fleisher, H. O.

Catalogue Codicum manuscriptorum orientalium Bibliothecae Regiae Dresdensis. Dresden, 1831

Catalogus librorum manuscriptorum qui in Bibliotheca Senatoria Civitatis Lipsiensis asservantur. Leipzig, Grim, 1839

Flügel, Gustav

Die arabischen, persischen und türkischen Handschriften der Kaiserlich-Königlichen Hofbibliothek zu Wien. 3 vols., Vienna, 1865—1869

A well organized and useful descriptive catalog.

Fonahn, Adolf M.

Arabic and Latin Anatomical Terminology Chiefly from the Middle Ages. Kristiana, Norwegian Academy, hist. class., 1922

Francis, Frank C.

The Catalogues of the British Museum. III. *Oriental Printed Books and Manuscripts.* London, Trustees of the British Museum, 1951.

Fulton, Alexander S., and Lings, Martin (editors)

Second Supplementary Catalogue of Arabic Printed Books in the British Museum. London, 1959

This useful compilation follows earlier catalogs by A. G. Ellis et al.

Gabrieli, Giuseppe

Manuale di bibliografia Musulmana. Rome, 1916

Very useful guide. See also his articles "Medici e scienziati arabi: Hunain ibn Ishāq," *Isis* 6 (1924), 282—92; and 500—506.

Garrett Collection at Princeton University. See Hitti, Philip K. et al.

Garrison, Fielding H.

A Medical Bibliography, A check-list of texts illustrating the history of medical sciences. Originally compiled by Garrison, and then rev. by Leslie T. Morton. London, Grafton, 1943. 2nd ed. rev. and enlarged under the title *Medical Bibliography: an annotated check-list of text illustrating the history of medicine.* London, Grafton, 1954

For index to citations in Garrison-Morton see Lee Ash, *Serial Publications Containing medical classics* (New Haven,

Conn., Yale University Press, 1961) which includes Morton's "The Story of the Garrison-Morton Bibliography of Medical Classics," and a foreword by Gertrude L. Annan.

Gay, Jean

Bibliographie des ouvrages relatifs à L'Afrique et à L'Arabie. San Remo, Gay, 1875

Methodical catalog for French and other works on the geography, history, commerce and literature of the Arabs and Africa with short biographical notes of authors.

Gibb, H. A. R., and Kramers, J. H.

Shorter Encyclopedia of Islam. Leiden, Brill, and London, Luzac, 1953

Includes index. Published under the auspices of the Royal Netherland Academy. See also *The Encyclopedia of Islam*, new edition, under Houtsma, et al.

Golius, Jacobus

Libri manuscripti Arabici et alii, quos pro Academia ex oriente Lugduni Batavorum. Leiden, 1640

Contains 231 entries in 23 pages, and is probably the earliest organized bibliography of Arabic manuscripts published in the West.

Grohmann, A.

Bibliotheken und Bibliophile im islamischen Orient, Festschrift zum Zweihundertjährigen Jubiläum des Bestandes des Gebäudes der Nationalbibliothek in Wien, Vienna, 1926

Guillén, Robles F.

Catálogo de los manuscritos árabes existentes en la Biblioteca Nacional de Madrid. Madrid, 1889

Hakk, Ashraful

A Descriptive Catalogue of the Arabic and Persian Manuscripts in the Edinburgh University Library. Hartford, Ethé & Robertson, 1925

Hazard, Harry W., and Cooke, H. Lester

Atlas of Islamic History. Princeton, N. J., University Press, 1951

Maps of the Islamic domain from the 7th to the 20th century. The third edition revised and corrected, 1954, shows material improvement.

Hitti, Philip K., Faris, Nabih A., and Abd al-Malik, Butrus

Descriptive Catalogue of the Garrett Collection of Arabic manuscripts in the Princeton University Library, with supplement. Beirut. American University Press, and Princeton, N. J., 1938—1939

Describes one of the best collections of Arabic manuscripts on medicine in the United States.

Houtsma, Martinus Theodorus

Catalogue d'une collection de manuscrits arabes et turcs appartenant à la maison E. J. Brill à Leyden. Leiden, Brill, 1889

Describes 1194 manuscripts, of which many have been purchased by the Princeton University on the advice of Conte Landberg of Sweden. This collection was originally purchased from Amīn Ḥasan al-Ḥulwānī of Saudi Arabia.

Houtsma, M. Th., Arnald, T. W., Basset, R., and Hartmann, R. (editors)

The Encyclopedia of Islam. 4 vols., and supplement, Leiden, Brill; and London, Luzac, 1913—1938

Dictionary of the geography, ethnology and biography of Muslim peoples, published under the patronage of the International Union of Academies in English, French and German. A new enlarged edition is in preparation by a number of leading orientalists: H. A. R. Gibb, J. H. Kramers, E. Lévi-Provençal, B. Lewis, Ch. Pellet, and J. Schacht (editorial committee), volumes I and II covering letters A—B, and C—D have already appeared (Leiden and London, 1960—1962). Also part of letter E, Fasc. 33, 1963.

Hughes, Thomas P.

A Dictionary of Islam. London, 1885, 2nd ed., 1896; and 3rd ed., London, 1935

A general encyclopedia stressing the religious and social aspects in the Islamic civilization. Not always accurate.

Husain, M. Hidayat

Catalogue of Arabic Manuscripts in the Collection of the Royal Asiatic Society of Bengal. Vol. 2, Calcutta, 1949

Index-Catalogue of the Library of the Surgeon-General's Office, United States Army.

Four series of authors and subjects:

Series I, 16 vols., Washington, D. C., 1880—1895

Series II, 21 vols., Washington, D. C., 1896—1916

Series III, 10 vols., Washington, D. C., 1918—1932

Series IV, 11 vols., Washington, D. C., 1936—1955

These invaluable series were followed by 3 vols., (vol. 1, author, and title, vols. 2 and 3, subject), under the title *Index-Catalogue of the Library of the Surgeon-General's Office, National Library of Medicine*, Washington, D. C., 1959—1961

See also *Index Medicus* in section IV.

Index Islamicus, see Pearson, J. D. et al.

Indian Office Library of Great Britain, see Loth, O.

ʿIsh, Yūsuf al-

Fihrist Makhtūtāt dār al-Kutub al-Zāhiriyyah. Damascus, 1366 A. H. (1947)

A guide list giving titles and brief description of the manuscripts at the Zāhiriyyah National Library in Damascus, Syria, and short biographies of certain authors. This library was founded by Ṭāhir al-Jazāʿirī (1851—1919) who also became its first director, pioneering the collecting of manuscripts in it.

Issa, Ahmad

Dictionnaire des noms des plantes en Latin, Français, Anglais et Arabe. Cairo, 1930

A useful dictionary on medical botany.

Jalabī, Dāwūd

Makḥṭūṭāt al-Mawṣil. Baghdād, al-Furāt Press, 1346 A. H. (1927)

Index of about 3300 Arabic manuscripts in schools, mosques, monasteries and private collections at the city of Mawṣil, Iraq, with valuable introduction, annotations, and indices.

Khuda Bakhsh Oriental Public Library, see Ross, Denison E. et al. (editors)

Klebs, Arnold Carl

Incunabula scientifica et medica. Published as vol. iv of *Osiris*, Bruges, Belgium, St. Catherine Press, 1938 (pp. 1—359).

Useful for Arabic medical works translated mainly in Latin and early printed in the West.

Lane, Edward William

An Arabic-English Lexicon. Book I (in 8 parts), London, Williams and Norgate, 1865—1893

Two books were intended by the author to complete this very useful and comprehensive work. However, after part 7 of Book I was prepared for publication (1876), the author died. Thus the last two parts were edited by his nephew, Stanley Lane-Poole. Recently the parts of Book I were reprinted in facsimile.

Lévi-Provençal, E. (editor)

Les manuscrits arabes de l'Escorial. Paris, Geuthner, 1928

Compiled, revised and edited according to notes by Hartwig Derenbourg and published by the École Nationale des Langues Orientales Vivantes, VI^e series, volume 3. This index describes Arabic manuscripts related to history, geography, and the Islamic religion. It was revised and completed by H. P. J. Rénaud (Paris, 1941).

Les manuscrits arabes de Rabat. Paris. Leroux, 1922

This guide list published under the auspices of the Institut des Hautes-Études Marocaines describes 544 manuscripts on

Islamic cultural and religious studies at the Générale Bibliothèque et Archives, Rabat, Morocco.

Loth, O. (editor)

A Catalogue of the Arabic Manuscripts in the Library of the Indian Office of Great Britain. London, 1877

Describes about 1044 manuscripts.

Ma'lūf, Amīn

Mu'jam al-Hayān (an Arabic Zoological Dictionary). Cairo, al-Muqtaṭaf, 1932

Useful lexicon, follows Latin (not Arabic) alphabetical order and includes a fine bibliography and index.

Ma'lūf, 'Isā I.

Makhtūṭāt al-Khiṣānah al-Ma'lūfiyyah fī al-Jāmi'ah al-Amīrikiyyah. Beirut, American University Press, 1925

Describes about 500 manuscripts at the American U. B.

Maṣṣūr, Ibrāhīm

English and Arabic Medical Vocabulary. 2nd ed., Cairo, al-'Ulā Press, 1924

Poorly organized.

Mazhar, Isma'il (compiler)

Al-Nabḍah Dictionary. English-Arabic. 2 vols., rev. by M. Badrān and I. Z. Khurshīd, Cairo, Grunberg, (1955).

A useful general dictionary including medical and allied sciences.

Mekinzsi, Ahmad Mohammed (compiler)

Catalogo de autores y titulos de la Biblioteca General des Tetuan (title in Spanish, but text in Arabic). Tetuan, Morocco, 1952

Millás-Vallicrosa, José M.

Los traducciones orientales en los manuscritos de la Biblioteca Catedral de Toledo. Madrid, 1942

Lists several alchemical and medical works.

Mingana, Alphonse

Brief Notes on some of the Rare or Unique Arabian and Persian Manuscripts in the John Rylands Library. Aberdeen, University Press, 1934

Catalogue of the Arabic Manuscripts in the John Rylands Library. Manchester, University Press, 1934

Minorsky, V.

A Catalogue of the Turkish Manuscripts and Miniatures in the Sir Alfred Chester Beatty Library, Dublin, Hodges Figgis, 1958

Includes an introduction by J. V. S. Wilkinson.

Moorat, S. A. J.

Catalogue of Western Manuscripts on Medicine and Science in the Wellcome Historical Medical Library, I. Mss. Written before 1650 A. D. London, The Wellcome Historical Medical Library, 1962

It includes many works related to Muslim authors.

Morley, W. H.

A Catalogue of the Manuscripts in the Arabic, Persian, Turkish and Hindustani Languages, Preserved in the Library of the Royal Asiatic Society. London, Oriental Translations Fund, 1838

This index was supplemented in 1854 by a descriptive list of 163 Arabic and Persian manuscripts followed with another by G. LeStrange under the title, *A Rough Additional Catalogue of the Oriental Manuscripts Belonging to The Royal Asiatic Society* (London, 1881).

Munajjid, Ṣalāh al-Dīn al-

Maṣādir Jadīdah ‘an Tārīkh al-Ṭibb ‘ind al-‘Arab.

This index of sources on the history of medicine in the Islamic period was first published in *Majallat al-Makḥḥūṭāt al-‘Arabīyyah* (Cairo, 1959), pp. 229—348; then reprinted separately. It provides a very useful biobibliography of extant Arabic manuscripts in Middle Eastern and other Oriental libraries.

al-Kitāb al-ʿArabi al-Makbūṭ. Vol. 1, Institut des manuscrits arabes, 1960

A brief description of extant Arabic manuscripts up to the 10th century after Hijrah (to about 1600).

Nemoy, Leon

Arabic manuscripts in the Yale University Library. New Haven, Conn., Yale Univ. Press, 1956

Describes the Salisbury and the Landberg collections.

Nicol, Alexander (editor)

Bibliothecae Bodleianae Codicum manuscriptorum orientalium. Part I, Oxford, 1787; and Part II, by J. Uri, revised and completed by E. Pusey (Oxford Univ. Press, 1838).

Descriptive lists of the oriental manuscripts at Bodleian Library at Oxford University.

Nicholson, R. A. (editor)

A Descriptive Catalogue of the Oriental Manuscripts Belonging to the Late E. G. Browne. Cambridge, Eng., University Press, 1932

Contains a memoir of the celebrated orientalist Browne who planned this index, together with a bibliography of his writings.

Osler, William Bart

Bibliotheca Osleriana. A catalogue of books illustrating the history of medicine and science. Oxford, Clarendon, 1929

One of the most complete and well-annotated bibliographies in the history of medicine and science comprising 7950 entries. The books listed in this catalog were collected by Sir William Osler (1849—1919) and bequeathed to McGill University, Montreal, Canada. It was edited by W. W. Francis, R. H. Hill, and Archibald Malloch.

Incunabula Medica. A study of the earliest printed books, 1467—1480. Oxford, University Press, 1923

Based on Osler's presidential address in 1914, before the Bibliographical Society, describing 217 medical books and their influence on the development of medicine.

Palmer, E. Henry (editor)

A Descriptive Catalogue of the Arabic, Persian and Turkish Manuscripts in the Library of Trinity College. Cambridge, Eng., University Press, 1870

Includes an appendix listing Hebrew and Samaritan manuscripts at the same library.

Pauly, Alphonse

Bibliographie des sciences médicales. Paris, Librairie Tross, 1874; reprinted in London, Verschoyle, 1954

Includes about 18000 titles of biographies, histories of medicine, and published works on epidemics, endemics and topographies.

Pearson, J. D. (editor) with the assistance of Ashton, Julia F.

Index Islamicus. Cambridge, Eng., Heffer, 1958

List of articles (over 26000 titles) on the entire field of Islamic studies published in some 5000 different periodicals and about 190 other collective publications between the years 1906—1955, with an Index. This useful bibliography was reprinted in 1961.

Index Islamicus Supplement, 1956—1960

Cambridge, Eng., Heffer, 1962

This catalog of articles on Islamic subjects in periodicals and other collective publications was compiled by J. D. Pearson. It gives lists of sources, periodicals, "Festschriften", congresses and other collective works arranged after countries and under subject headings.

Oriental Manuscript Collections in the Libraries of Great Britain and Ireland. London, The Royal Asiatic Society, 1954.

This catalog compiled by Pearson includes Arabic, Persian, and Turkish manuscripts, many of which pertain to the healing arts.

Pertsch, Wilhelm

Die arabischen Handschriften der Herzoglichen Bibliothek zu Gotha. 5 vols., Gotha, 1878—1892

Important catalog describes 2891 manuscripts with general indices.

Petersbourg (Russia), Bibliothèque Imperiale Publique de St.-, See Rosen, Victor

Real Biblioteca del Monasteria de San Lorenzo de El Escorial, see Casiri, M.; and Derenbourg, H.

Rehatseh, Edward (editor)

Descriptive Catalogue of the Arabic, Hindustani, Persian and Turkish Manuscripts in the Mulla Firuz Library. Bombay, 1872

Describes 560 manuscripts mainly on religious and historical topics.

Ribera, J., and Asin, M.

Manuscritos arabes y aljamiados de la Biblioteca de al junta de ampliacion de estudios. Madrid, 1912

Rieu, Charles (editor)

Catalogus Codicum manuscriptorum orientalium qui in Museo Britannico asservantur. II. *Codices Arabicos Amplectens.* London, 1846. Published by the Trustees of the Museum in 1871.

The text in this catalog is in Latin but titles of manuscripts and authors are also included in Arabic. The manuscripts include many on medicine and allied sciences.

Supplement of the Catalogue of Arabic Manuscripts in the British Museum. London, Longmans, 1894

Printed by Gilbert and Rivington, this index describes 1303 manuscripts added to the collection since 1871. It includes useful, detailed indices.

Ritter, Hellmut, and Dietrich, Albert (editors)

Bibliotheca Islamica.

A series of volumes issued by the Deutsche Morgenländische Gesellschaft in cooperation with the Internationale Gesellschaft für Orientforschung, e. g. volume 20 was published in Wiesbaden, Steiner, 1959.

Ritter, Hellmut, and Walzer, R.

Arabische Übersetzungen griechischer Ärzte in Stambuler Bibliotheken. Published as volume XXVI in Sitzungsberichte der Preussischen Akademie der Wissenschaften, phil.-hist.Klasse. Berlin, 1934

Index of Arabic manuscript translation of originally Greek writings housed at libraries in Istanbul, Turkey.

Ronart, Stephen and Nandy

Concise Encyclopaedia of Arabic Civilization, the Arab East. New York, Praeger, 1960

Although it is not comprehensive in scope, as the title rightly indicates, yet this work is a useful reference on Arabic culture and lands both medieval and modern.

Ronkel, Th. S. Van

Catalogue of the Arabic manuscripts preserved in the Museum of the Batavia Society of Arts and Sciences. Batavia, The Hague, 1913

Supplements an earlier index by L. W. C. Van den Berg, Batavia et Hagae, 1873.

Roolvink, R. (compiler) with the collaboration of El Ali, Saleh A.; Monés, Hussain; and Salim, Mohm

Historical Atlas of the Muslim Peoples. Cambridge, Mass. Harvard Univ. Press, 1957

On the Islamic domain from the 7th to the middle of the 20th century with a foreword by H. A. R. Gibb. Maps are produced in color by Djambatan of Amsterdam, Holland.

Rosen, Victor (editor)

Collections scientifiques de l'Institut des Langues Orientales du Ministère d'Affaires Étrangères. I. Les manuscrits arabes de l'Institut des Langues Orientales de St.-Petersbourg. Paris, 1877

Describes 229 manuscripts, supplemented in cooperation with D. Gunzberg (St.-Petersbourg, 1891); and by V. J. Beljaev (Leningrad, 1932).

Catalogue des manuscrits et xylographs orientaux de la Bibliothèque Impériale Publique de St.-Petersbourg. Paris, 1852

Notices sommaires des manuscrits arabes du Musée Asiatique. St.-Petersbourg, 1881

These manuscripts now are part of the collections at the USSR Academy of Sciences.

Rosen, Victor

Remarques sur les manuscrits Orientaux de la Collection Marsigli à Bologna, suivies de la liste complète des manuscrits arabes de la même collections. Paris, 1885

Ross, E. Denison, and Browne, E. G.

Catalogue of the Arabic and Persian Manuscripts in the Indian Office Library of Great Britain. London, Cambridge University Press, 1902

Describes the two collections of Sir William Jones and Burjorjee S. Ashburner not mentioned in Loth's catalog.

Ross, E. Denison et al. (editors)

Catalogue Raisonné of the Arabic and Persian Manuscripts in the Oriental Public Library at Bankipore. 25 vols., and 2 supplements with 4 indices, Calcutta, India, 1908—1942

Useful catalogues of important collections of manuscripts prepared under the auspices of the State of Bengal. Volume IV edited by Azimu'd-Dīn Aḥmad Maulavi is devoted to describing Arabic medical manuscripts housed in the Bankipore O. P. Library, now called the Khuda Bakhsh Oriental Public Library.

Rylands Library, John, see Mingana, Alphonse

Sarkīs, Yūsuf Ilyān

Muʿjam al-Matbūʿāt al-ʿArabiyyah wāl-Muʿarrabah. Cairo, Maṭbaʿ at Sarkīs, 1928

Index of printed Arabic Books from late 15th century to 1919 with short biographies of authors.

Jāmiʿ al-Taṣānīf al-Ḥadīthah. 2 vols., Cairo, Sarkis, 1929—1930

On printed Arabic books from 1920 to 1928 with indices and desired corrections, as a supplement to his *Muʿjam*.

Sauvaget, Jean

Introduction à l'histoire de l'Orient musulman. Eléments de bibliographie, Paris, Adrien-Maisonneuve, 1943

On general catalogs, sources and collections of historical data and bibliographies in Islam.

Sayyid, Fūād (editor)

Fibris al-Makhtūṭāt al-Muṣawwarah. 3 vols., Cairo, 1954 — 1959

Catalog of microfilms of Arabic manuscripts collected and published by Maḥad Iḥyā al-Makhtūṭāt al-ʿArabiyyah, the Educational Department of the League of the Arab States. Manuscripts related to the healing arts were edited in volume III, Part 2, by Ibrāhīm Shabbūh.

Sbath, Paul

Bibliothèque de Manuscrits Catalogue. 3 vols., Cairo, Impr. Syrienne, 1928—1934

Index of 1326 manuscripts, most of which were the property of Father Sbath, on topics related to almost all areas of medieval Islamic culture.

Al-Fibris. 3 parts, Cairo, 1938—1940

Part I on Arabic manuscripts written before the 17th century. Part II and III on those writings of the last three centuries (ouvrages des auteurs des trois derniers siècles).

Schlimmer, Joh. L.

Terminologie médico-pharmaceutique et anthropologique français-persane. Ṭahrān, Irān, 1874

Schneider, Wolfgang

Lexikon alchemistisch-pharmazeutischer Symbole. Weinheim, Chemie, 1962

From classical times to the 18th century.

Schnurrer, Christian F.

Bibliotheca Arabica. Halae ad Salam, 1811

Contains about 2000 entries of Arabic printed books from 1505 to 1810, alphabetically arranged according to subject matter.

Schullian, Dorothy M., and Sommer, Francis E.

A Catalogue of Incunabula and Manuscripts in the Army Medical Library. New York, Schuman, (1950)

Includes a useful descriptive list of oriental (mainly Arabic and Persian) medical manuscripts. This list of manuscripts is a part of the fine collection of the National Library of Medicine, Bethesda, Maryland.

Sharaf, Muḥammad

An English-Arabic Dictionary. 2nd ed., Cairo, al-Amīriyyah Press, 1928; published under the auspices of the Ministry of Education in Egypt.

Important reference on clinical medicine, anatomy, physiology, surgery, materia medica, toxicology, meteorology, zoology, chemistry, pharmacy, physics, and bacteriology.

Sharify, N.

Cataloging of Persian works, including rules for transliteration, entry and description. Chicago, University Press, 1959

Shartūnī, Saʿīd al-Khūrī al-

Aqrab al-Mawārid. 3 vols. (bound in one), Beirut, Lebanon, Catholic Press, 1889

Useful Arabic lexicon with index.

Sīdah (probably spelled Sayyidah), ʿAlī ibn Ismāʿīl ibn

Al-Mukbassas fī al-Lughah.

Arabic lexicon completed about the middle of the 11th century in Moorish Spain. It was published in 5 vols. (17 parts), Cairo, 1316—1321 A. H. (1898—1904).

Siggel, Alfred

Katalog der arabischen alchemistischen Handschriften Deutschlands. Berlin, 1956

Descriptive list of alchemical Arabic manuscripts housed at the public libraries of Dresden, Göttingen, Leipzig, and Munich, published under the auspices of the *Deutsche Akademie der Wissenschaften zu Berlin*. It supplements the authors index of manuscripts at the Ehemals Herzogliche Bibliothek zu Gotha (Berlin, 1950), listed below.

Katalog der arabischen alchemistischen Handschriften Deutschlands. Handschriften der Ehemals Herzogl. Bibliothek zu Gotha. Berlin, 1950

Katalog der arab. alchem. Handschr. Deutschl. Handschr. der öffentlichen wissenschaftlichen Bibliothek, früher Staatsbibliothek Berlin. Berlin, 1949

Slane, MacGuckin de, et al

Catalogue de manuscrits arabes de la Bibliothèque Nationale de Paris. 3 parts, Paris, 1883—1895

Describes 4665 manuscripts. See also Blochet, E.

Ṭahāwī, Muḥammad ʿAlī al-

Kashshāf Iṣṭilāḥāt al-Funūn wāl-ʿUlūm. Istanbul, Turkey, 1317 A. H. (1899)

Useful Arabic lexicon of sciences and arts.

Thompson, R. C.

A Dictionary of Assyrian Botany. London, 1949

This lexicon might be useful for historical research to trace the connection and influence of ancient Babylonian civilizations on early development of botany and materia medica in Islam.

Toderini, Giambatista

Letterature Turchesca dell' Abate. 3 vols., Venice, 1787

A little known bibliography, yet deserving of credit considering the time of its publication. It describes manuscript collections at major libraries in Turkey.

Tornberg, C. J.

Codices arabici, persici & turcici Bibliothecae Regiae Upsaliae Lundae. Uppsala, 1849

Describes 512 manuscripts at the University of Uppsala with indices. This catalog was revised and supplemented by K. V. Zettersteen under the title, *Die arabischen, persischen, und türkischen Handschriften der Universitätsbibliothek zu Uppsala*. 2 vols., Uppsala, 1930—1935

Toteille, Ferdinand (spelled Tütıl)

Wasf Makhtūtāt al-Maktabah al-Sharqiyyah. 4 parts, Beirut, Catholic Press, 1930

Describes 792 manuscripts at the library of St. Joseph University in Beirut, Lebanon. This catalog was started by Louis Cheikho.

Undina Martorell, Federico

El Archivo Condal de Barcelona en los siglos IX—X, Estudio critico de sus fondos, Barcelona, Seccion de Barcelona, no. 15, 1951

Published under the auspices of the Consejo Superior de Investigaciones Cientificas Escuela de Estudios Medievales, as text 18, this work contains original documents, dated and classified with an index.

Uppsala, Universitätsbibliothek d., see Tornberg, C. J.

Vajda, G.

Index Général des manuscrits arabes musulmans de la Bibliothèque Nationale de Paris. Paris, 1953; published under the auspices of the Publication de l'Institut de Recherche et d'Histoire des Textes.

Vallée, Léon

Bibliographie des Bibliographies. Paris, Terquem, 1883—1889; and a supplement, Paris, 1897

Vatican, Biblioteca Apostolica, see Della Vida, G. L., and Rossi, E.

Voight, Wolfgang (editor)

Verzeichnis der Orientalischen Handschriften in Deutschland.

Published by the *Deutsche Morgenländische Gesellschaft* in a series which will include about 20 volumes containing bibliographies and description of about 30000 manuscripts in Germany.

Vol. 1, ed. Walter Heissig and Klaus Sagaster, Univ. of Bonn, 1960; describes 621 documents, manuscripts, charts' and maps of Mongolia, Siberia, etc. Vol. 2 was scheduled to appear in 1962 but I have not seen it yet. Others in this tremendous and invaluable undertaking will follow.

Vollers, K.

Katalog der Handschriften der Universitätsbibliothek zu Leipzig. II. Die islamischen, christlich-orientalischen, juedischen und samaritanischen Handschriften. Leipzig, Otto Harrassowitz, 1906

Descriptive catalog of about 1120 manuscripts mostly Arabic. The subject matter ranges from religion and history to botany and medicine.

Voorhoeve, P.

Handlist of Arabic Manuscripts in the library of Leiden and other Collections in the Netherlands. Leiden, Brill, 1957

Preface to this valuable descriptive list is written by chief librarian A. Kessen.

Wüstenfeld, Ferdinand

Die Geschichtsschreiber der Araber und ihre Werke. Göttingen, Dietrich, 1882

Bio-bibliography of historians and men of letters and sciences during the Arabic period.

Wüstenfeld-Mahler'sche Vergleichungs-Tabellen der mohammedanischen und Christlichen Zeitrechnung. 2nd ed., by Edward Mahler, Leipzig, Brockhaus, 1926

Useful charts for conversion dates from the Hijrah to the Christian reckoning, published under the auspices of the Deutsche Morgenländische Gesellschaft. This catalog is a continuation of Ferdinand Wüstenfeld's *Vergleichungs-Tabellen der muhammedanischen und christlichen Zeitrechnung* (Leipzig, 1854). Recently it has been again revised by Bertold Spuler in collaboration with Joachim Mayr under the title *Wüstenfeld-Mahler'sche Vergleichungs-Tabellen. Zur muslimischen und iranischen Zeitrechnung mit Tafeln zur Umrechnung orient-christlicher Ären* (Wiesbaden, Steiner Verlag, 1961).

Ẓāhiriyyah, National Library (Damascus, Syria), see 'Ish, Y.

Zāwī, Ṭāhīr Aḥmad al-

Tartīb al-Qāmūs al-Muḥīt. 4 vols., Cairo, Istiqāmah and Risālah Presses, 1959

A new arrangement of the comprehensive dictionary *al-Muḥīt* of al-Firūzabādī (d. 1414).

Zenker, J. Th.

Bibliotheca Orientalis, Manuel de bibliographie orientale. 2 vols., Leipzig, 1846—1861

A comprehensive catalog with titles in Arabic and description and annotation in French.

Zirkilī, Khayr al-Dīn al-

Al-A'lām. 3 vols., Cairo, al-'Arabiyyah Press, 1345 A. H. (1937); 2nd ed. 10 vols., Cairo, 1373—1378 A. H. (1954—1959)

Who's Who-type encyclopedia of eminent Arabs and Arabists from the pre-Islamic period to the early 20th century.

IV

Current Periodicals

Acta Orientalia. Budapest, Hungary, 1950

Organ of the Academiae Scientiarum Hungaricae, published irregularly, with text in several languages, including summaries in Russian.

Acta Orientalia. Copenhagen, Denmark, 1922

Published irregularly, by the *Societates Orientales Danica, Norvegica, Svecica*, with text in several languages, including book reviews and indices.

Actes du Congrès International des Orientalistes. Paris, 1876

Includes articles and the proceedings since the first session in Paris, 1873.

Aesculape. Paris, 1911

Revue des lettres et des arts dans leurs rapports avec les sciences et la médecine, carries illustrations of interest to medical arts, particularly in the West.

American Journal of Semitic Languages and Literature. Chicago, Ill., 1884

Ambix. London, 1937

Organ of the Society for the Study of Alchemy and Early Chemistry, published since 1937. It was suspended after the second volume (1938—46) to appear as volume 3 (1948—49). Then appeared as follows: Vol. IV, 1949—51, Vol. V, 1953—56, Vol. VI, 1957—58, Vols. VII through X, 1959—62 inclusive. Now it appears in an annual volume of 3 parts containing authoritative articles and book reviews on chemical history and technology up to the 19th century. It carries important

articles of interest in the history of alchemy, in Islam or later developments influenced by it. See for example, "The Arabic Literature on Alchemy According to An-Nadim (L. D. 987)" by J. W. Fück, in *Ambix*, 4, nos. 3 and 4 (1951), pp. 81-144.

Al-Andalus. Madrid, 1933

Organ of the Escuelas de Estudios Árabes de Madrid y Granada, published semi-annually and carries articles related to Islamic culture in the Iberian peninsula from the 8th through the 15th centuries. It occasionally includes articles on the medical development of the period.

Annali. Naples (Italy), 1950

Organ of the Istituto Universitario Orientale di Napoli, and is of general interest. The new series, volume 12, appeared in 1962.

The Arab Practitioner. Cairo, 1960

Brings occasional articles of historical interest.

Arabica. Leiden, Brill, 1954

A review of good quality for Arabic and Islamic studies issued three times a year. *Arabica* is also the organ of the "Arabisants Français." It includes articles concerned with the language, literature, and history of Arabic civilization and its relation to Western culture. It carries a critical bulletin and a bibliographic revue with annual index.

Archives Internationales d'Histoire des sciences. Paris, 1947

Quarterly review published by the division of the history of sciences of the Union Internationale d'Histoire et de philosophie des Sciences. It is a continuation of the journal *Archeion*, formerly *Archivio di storia della Scienza*, also a quarterly review (Rome 1919—1939) which was founded and edited by Aldo Mieli as the official organ of the Comité-Internationale d'Histoire des sciences, Académie Internationale d'Histoire des sciences, et de la Section d'Histoire des Sciences du Centre International de Synthèse.

Archiv Orientalni. Praha (Prague, Czechoslovakia), 1932

Organ of the Czechoslovakian Academy of Oriental Studies, issued three times yearly, and includes articles of interest to Islamic culture.

Bibliotheca Orientalis. Leiden, 1943

Published by the *Nederlandsch Instituut voor het Nabije Oosten* with text in several languages.

Boletín de la Sociedad Española de Historia de la Farmacia, Ciencia, Literatura y Arte. Madrid, 1950

This quarterly is the second periodical ever published to be devoted entirely to the history of pharmacy, the first being the French *Revue d'Histoire de la Pharmacie*. The *Boletín*, as the organ of the Sociedad Española de Historia de la Farmacia, is mainly interested in pharmaceutical developments in Spain.

Bulletin of the Department of History of Medicine. Hyderabad, India, 1963

This new periodical is published by the Department of Medical History of the Osmania Medical College, established in 1959. It promises to be of real interest to the historian of medical sciences in medieval Islam.

Bulletin of the History of Medicine. Baltimore, Maryland, 1933

Organ of the American Association for the History of Medicine, and of the Johns Hopkins Institute of the History of Medicine. It is published bi-monthly with articles of high quality on all phases and periods of medical history and the allied sciences. For consulting issues of the early years see cumulative index, vol. 1—20 (1933—1946).

Bulletin de l'Institut d'Égypte. Cairo, 1918—1919

Organ of the Institut d'Égypte (first founded in August 20, 1798), carries articles and essays on a variety of topics on cultural aspects of interest to Egypt, including medical developments in Islam.

Bulletin of the School of Oriental and African Studies. London, 1918

Published by the University of London, the first volume of this periodical (1918—1920), appeared in 1920, vol. 2, in 1923, vol. 3, in 1925 and vol. 4, in 1926. It includes the Islamic civilization.

Cahiers Lyonnais d'Histoire de la Médecine. Lyon, France, 1955

Organ of the Société Française d'Histoire de la Médecine.

Centaurus. Copenhagen, Denmark, 1950

An international scholarly magazine devoted to the history of science and medicine of all periods and areas. The text is published in English, French and German.

Chymia. Philadelphia, Pennsylvania, 1948

Annual studies in the history of chemistry (volume X published in 1962).

Ciba Zeitschrift. Basle, Switzerland, 1933

Published in German. Of special interest to us is the English edition, *Ciba Symposia* (Summit, New Jersey), volumes I to X, issued between April, 1939, and June, 1949 (Index prepared by Curt Proskaner, 1949). Regarding the Islamic period see Max Meyerhof, "The Background and Origin of Arabian Pharmacology," and other articles, vol. 6 (1944), pp. (1845—1876). Volume XI (1949—1951) was issued quarterly. Since 1953 *Ciba Symposia* has been published six times yearly by Ciba Limited of Basle, in English, French, Spanish, Italian, German, and Dutch. A special edition in Japanese appears under the title, *Ciba Kagami*.

Current Work in the History of Medicine. London, 1954

An international bibliography of current books, separately published essays and especially articles in leading journals anywhere in the world, in all fields related to the healing art. This very useful bibliography is published quarterly by the Wellcome Historical Medical Library.

Diabane Pezēchki. 'Tehran, Iran, 1947

Published bimonthly in the Persian language, and of interest mainly to practitioners in that area.

Folia Orientalia. Kraków, Poland, 1959

A review of oriental and Islamic studies, published by the Polska Akademia Nauk, with text in several languages. This excellent periodical appears under the direction of the Seminarium Filologii Orientalnej of the Jagiellonian University in Kraków.

Galena. Rome, 1953—1960

Publication of this fine journal which has been devoted to the art and history of pharmacy has been irregular and temporarily suspended or probably discontinued.

Histoire de la Médecine. Paris, 1951

Official organ of the Société Française d'Histoire de la Médecine published monthly. It is concerned mainly with French medicine and medical art.

Index Medicus. Washington, D. C., and Chicago, Illinois, 1960

This comprehensive classified record of current medical literature of the world is published monthly by the National Library of Medicine, Washington, D. C., and in a cumulative annual volume by the American Medical Association, Chicago, Ill. It is a continuation of the *Index Medicus*; *A Quarterly Classified Record of the Current Medical Literature of the World* (New York, 1879—1926) in three series: 1st series vols. 1—21 (1879 to 1899), under the supervision of John S. Billing and Robert Fletcher; 2nd series vols. 1—18 (1903—1920), edited by Fletcher and F. H. Garrison (3 vols. under the title *Bibliographie Médicale* were edited by C. Potain and C. Richet in the intermediate three years, 1900—1902); 3rd series edited by Garrison, vols. 1—6 (1921—1927). In the meantime the *Quarterly Cumulative Index to Current Medical Literature*, appeared in 12 vols., 1916 to 1926. The *Index Medicus*; *a Quarterly* . . . , thereafter was substituted by the *Quarterly Cumulative Index Medicus*, vols.

1—58 (1927—1955) published by the American Medical Association, Chicago, Ill. Meanwhile, the Armed Forces Medical Library (now the National Library of Medicine) published the *Current List of Medical Literature* (Washington, D. C., 1941—1959). This list appeared in two parts: authors, and subjects (beginning 1951).

Indian Journal of the History of Medicine. Madras, India, 1956

Organ of the Indian Association of the History of Medicine, published twice a year. It occasionally carries articles of interest to the history of the healing art in medieval Islam.

Isis. Brussels, Belgium, 1913—1940; and Cambridge, Mass., Seattle, Wash., and Baltimore, Md., U. S. U., 1941

Official quarterly journal of the History of Science Society was founded, 1912, by George Sarton. It is invaluable as an international review devoted to the history of science and its cultural influences. The first cumulative index was issued for vols. I—XX (1913—1934), and by 1959, the 84th installment of critical bibliographies appeared. See new classification vol. 53 (1962), pp. 551—636. In 1964 this journal's headquarters moved to the Smithsonian Institution, Washington, D. C., Robert P. Multhauf editor.

Der Islam. Strassburg and Berlin, Germany, 1910

Zeitschrift für Geschichte und Kultur des islamischen Orients, up to the present, with text mainly in German or English. It includes valuable articles on medical history and the Islamic civilization in general. The year 1962 commences volume XXXVIII.

Islamic Culture. Hyderabad, Deccan, India, 1929

Quarterly devoted to all aspects pertaining to the religion and civilization of the Islamic domain. It is now published by the Islamic culture Board, Hyderabad.

The Islamic Quarterly. London, 1954

A review of Islamic culture published by the Islamic cultural Center in London. It occasionally contains articles of historical significance.

Islamic Studies. Karachi, Pakistan, 1962

Journal of the Central Institute of Islamic Research.

Janus. Leiden, Brill, 1896

International review of the history of sciences, medicine, pharmacy, and technique published quarterly in several languages. The earliest cumulative index of this valuable periodical was that issued for the first decade (1896—1905). The year 1961 commences volume L (1961—1963).

Journal of the American Oriental Society. Baltimore, Md., 1850

Published quarterly by the American Oriental Society and carries articles related to all the orient from Japan to Africa. The year 1962 commences volume LXXXII. An Index to volumes XXI—LX of this Journal was compiled by E. H. Schafer, I. Dyen, H. E. Fernald, and H. W. Glidden (Chicago, Ill., 1955).

Journal Asiatique. Paris, 1822

Organ of the Société Asiatique Française, recueil de mémoires et de notices relatifs aux études orientales.

Journal of the History of Ideas. New York, 1939

A quarterly devoted to cultural and intellectual history.

Journal of the History of Medicine and Allied Sciences. New Haven, Connecticut, 1946

Published quarterly from the Department of History of Medicine at Yale University. It carries articles of high quality on all phases and periods connected with the development of the healing arts.

The Journal of the Royal Asiatic Society of Great Britain and Ireland. London, 1834

Organ of the Society, and one of the earliest periodicals of its kind that is still published. It occasionally includes articles of real importance to medical history and related sciences in Islam. The first cumulative index for 1834—1939 was issued in 3 volumes.

Koroth. Jerusalem, 1954

A journal devoted to the history of medicine and science, published in Hebrew with summaries in English.

Al-Machbriq. Beirut, Lebanon, 1898

Revue catholique orientale sciences, lettres et arts published by the Université Saint-Joseph, Beirut, is a very useful bimonthly with text in Arabic and French.

Majallat al-Hilāl. Cairo, 1892

Founded and first edited by Jurji Zaydan (1861—1914), occasionally carries articles useful in relation to medical history in Islam.

Majallat al-Majma' al-'Ilmi al-'Iraqi. Baghdād, 1950

Organ of the Iraqi Academy of Science, publishes articles related to all phases of Arabic civilization.

Majallat Ma' had al-Makhtūṭāt al-'Arabiyyah. Cairo, 1955

A guide to location, identification and description of Arabic manuscripts in various libraries, mainly in the Middle East, with French title *Revue de l'Institut des manuscrits arabes*. It is published irregularly, but makes a useful bibliography.

Majallat al-Muqtaṭaf. Beirut, 1876—1887; Cairo, 1888—1956

Suspended temporarily, this monthly was the earliest Arabic journal of high caliber to regularly continue its appearing until 1956. It was founded and edited by Ya'qūb Ṣarrūf (1852—1927), and contributed numerous important articles related to the Islamic civilization.

Medical History. London, 1957

Official organ of the Cambridge University History of Medicine Society, Faculty of the History of Medicine and Pharmacy, the Worshipful Society of Apothecaries of London, the Norwegian Society for the History of Medicine, the Osler Club of London, and the Scottish Society of the History of Medicine. It carries articles on Arabic medicine, since this highly

recommended quarterly is devoted to the history and bibliography of medicine and the related sciences of all periods.

The Middle East Journal. Washington, D. C., 1946.

This periodical is devoted to modern Middle Eastern studies. However, it occasionally carries articles of interest to the cultural aspects of medieval Islam.

The Muslim World. Hartford, Connecticut, 1911

A quarterly journal of Islamic studies and of Christian interpretation among Muslims. It is concerned mainly with religious and philosophical thought in Islam.

Oriens. Leiden, Brill, 1948

Organ of the International Society for Oriental Research, published semiannually with text in several languages. Index to vols. I—X (1949—59) was edited with vocabularies, indices and bibliography by M. P. D. Roncaglia for the Internationalen Gesellschaft für Orientforschung (Leiden, Brill, 1963).

Orient. Paris, 1957

A quarterly devoted to oriental studies at large. Volume VII appeared in 1963.

Osiris. Bruges, Belgium, 1936

This scholarly publication is devoted to brief and detailed studies on the history of science. It was founded by George Sarton, to whose memory volume XIII (1958) was dedicated. Volume XIV (1962), pp. 33—192, includes Cyril Elgood's *Tibb-ul-Nabbi* or *Medicine of the Prophet*.

Pagina de Storia della medicina. Rome, Italy, 1957

Organ of the Istituto de Storia della Medicina dell' Università de Roma. This bimonthly journal is mainly interested in the development of medicine and medical art in Italy.

Pharmacy in History. Madison, Wisconsin, 1955

Organ of the American Institute of the History of Pharmacy and a continuation of the A. I. H. P. Notes, edited by Prof.

Glenn Sonnedecker. For details see Ernst W. Stieb, *American Institute of the History of Pharmacy through Two Decades*, Madison, Wisc., University Press, 1961.

Physis. Firenze, Italy, 1959

Revista di Storia della Scienza, published under the auspices of the *Consiglio Nazionale delle Ricerche*, is an important quarterly for the history of science in general.

The Proceedings of the Pharmaceutical Society of Egypt. Cairo, 1930

Organ of the pharmaceutical society of the United Arab Republic. It is now published semi-annually and occasionally carries news and articles of historical interest.

Przegląd Orientalistyczny. Warsaw, Poland, 1952

Published by the Polskie Towarzystwo Orientalistyczne with tables of contents in English and Russian.

Revue des Études Islamiques. Paris, 1927

Quarterly of general interest to Islamic culture, and a continuation of *Revue du Monde Musulman* (Paris, 1906—1926).

Revue d'Histoire de la Pharmacie. Paris, 1913

Organ of the Société d'Histoire de la Pharmacie in France, published earlier as the *Bulletin*. It is the first journal in existence devoted entirely to the history of pharmacy. The contents stress French historical pharmacy, while news, reviews and bibliographic notes tend to be international.

Revue d'Histoire des Sciences et de leurs Applications. Paris, 1948

Published by the presses of the French Universities giving book reviews, chemical abstracts and articles related to the history of science and technology in general.

Rivista di Storia della Medicina. Rome, 1957

Official organ of the Società Italiana di Storia della Medicina.

Rivista Degli Studi Orientali. Rome 1907

On oriental studies in general, published for the Istituto di Studi della Università di Roma.

Sind Medical Journal. Karachi, Pakistan, 1929

This quarterly occasionally carries news and articles of some interest to historians of the Islamic culture.

Speculum. Cambridge, Mass., 1926

Official organ of the *Mediaeval Academy of America*, devoted to studies on the civilizations of the Middle Ages.

Studia Islamica. Paris, 1954

Semi-annual journal with text in French and English.

Sudhoffs Archiv für Geschichte der Medizin und der Naturwissenschaften. Wiesbaden, Steiner, 1907

This invaluable quarterly is one of the best in its field and carries important articles related to the history of the healing arts in Islam.

Die Welt des Islam — World of Islam — Monde de l'Islam. Leiden and Köln, Brill, 1951

Internationale Zeitschrift für die Entwicklungsgeschichte des Islams, besonders in der Gegenwart. The text and title of this new current series are in German, English, and French, and is concerned mainly with contemporary developments in Islamic countries.

Zur Geschichte der Pharmazie. Stuttgart, Germany, 1952

Organ of the Internationale Gesellschaft für Geschichte der Pharmazie, is issued bound with the *Deutsche Apotheker Zeitung* (Stuttgart) as a supplement. It is one of the best periodicals on the history of pharmacy and allied arts, edited since 1953 by G. E. Dann.

ADDENDA

1. Addition to page 85

Post, George Edward

Flora of Syria, Palestine and Sinai, 2nd ed. Rev. and enlarged by John Edward Dinsmore, 2 vols., Beirut, American Press, 1932—1933

This “Handbook of the flowering plants and ferns, native and naturalized from the Taurus to Ras Muhammad and from the Mediterranean sea to the Syrian desert,” is an adequately illustrated and very useful guide to the flora of the regions described in the sub-title.

2. Addition to page 86

Quer, P. Font

Plantas Medicinales, el Dioscorides Renovado. Barcelona, Spain, Ed. Labor, 1962

This beautiful illustrated volume describes 678 species and includes 752 original illustrations, 20 others in color, and 58 maps. It also contains a bibliography and a useful index.

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